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SIXTY-EIGHTH ANNUAL SESSION

HELD AT

PINEHURST, NORTH CAROLINA

APRIL 26, 27, 28, 1921

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1921

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Dr. C. A. Julian ..... Thomasville
Dr. W. L. Dunn ..... Asheville

"It is understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the Transactions of the Society."—*Extract from By-Laws, chapter 10, section 8.*

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ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1920

*Missing Data Not to Be Found in Record

	Date	Place	Members in Attendance	Presidents	Vice-Presidents	Secretary	Treasurer	Members on roll*	Honorary Members*	Honorary Fellows*
	1849	Raleigh	25	F. J. Hill	.....	W. H. McKee	.....	25	....	....
1	1850	Raleigh	21	E. Strudwick	F. J. Haywood, C. E. Johnson, J. W. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill	38	9	....
2	1851	Raleigh	23	E. Strudwick	C. E. Johnson.	W. H. McKee	W. G. Hill	46	9	....
3	1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood	J. J. W. Tucker	72	12	....
4	1853	Fayetteville	24	J. E. Williamson	William G. Hill, Johnston P. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree	80	14	....
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean	S. S. Satchwell	Daniel Dupree	84	17	....
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell	J. B. Dunn	96	18	....
7	1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn	101	22	....
8	1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas	J. B. Dunn	113	16	....
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn	172	18	....
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas	C. W. Graham	....	....	....
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham	233	18	....
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham	244	18	....
13	1866	Raleigh	20	J. J. Summerell	.....	W. G. Thomas	C. W. Graham	....	....	....
14	1867	Tarboro	41	W. G. Thomas	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	S. S. Satchwell	C. W. Graham	288	11	....
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George A. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood	J. W. Jones	....	....	....
16	1869	Salisbury	36	E. B. Haywood	Thomas E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood	J. W. Jones	....	....	....
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Lucky, W. R. Sharpe, R. L. Payne.	Thomas F. Wood	J. W. Jones	....	....	....
18	1871	Raleigh	35	Hugh Kelly	D. N. Patterson, R. C. Pearson, J. B. Seaby, G. L. Kirby.	Thomas F. Wood	J. W. Jones	....	....	....
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee	J. W. Jones	....	....	....

ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1920—Continued.
*Missing Data Not to Be Found in Record.

Date		Place	Members in Attendance	President	Vice-Presidents	Secretary	Treasurer	Members on Roll*	Honorary Members*	Honorary Fellows*
20	1873	Statesville	43	M. Whitehead	W. T. Eunett, William Little, Charles Duffy, T. P. Jerman.	James McKee	H. T. Bahnson	....	....	...
21	1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee	H. T. Bahnson	....	....	....
22	1875	Wilson	60	J. W. Jones	Walter Debnam, J. A. Gibson, William Little, D. N. Patterson.	James McKee	H. T. Bahnson	148	5	....
23	1876	Fayetteville	33	Peter E. Hines	J. H. Baker, G. G. Smith, T. D. Raigh, J. K. Hall.	James McKee	H. T. Bahnson	157	4	....
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee	A. G. Carr	177	4	....
25	1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Smith.	L. J. Picot	A. G. Carr	194	6	....
26	1879	Greensboro	109	Chas. Duffy, Jr.	J. A. Gibson, Willis Alston, James McKee, A. A. Hill.	L. J. Picot	A. G. Carr	198	6	....
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr	225	6	....
28	1881	Asheville	92	R. B. Haywood	J. E. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr	254	6	....
29	1882	Concord	65	Thos. F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot	A. G. Carr	297	7	....
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr	310	7	....
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr	348	7	....
32	1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr.	424	6	....
33	1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr.	438	7	....
34	1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr.	452	7	....
35	1888	Fayetteville	133	T. D. Haigh	W. T. Ennett, J. A. Dunn, T. E. Anderson.	J. M. Baker	C. M. Poole	306	6	....
36	1889	Elizabeth C	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long.	J. M. Baker	C. M. Poole	410	6	....
37	1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. D. Booth.	J. M. Hays	C. M. Poole	414	6	....
38	1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly.	J. M. Hays	C. M. Poole	422	6	....
39	1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays	C. M. Poole	431	6	....
40	1893	Raleigh	221	J. W. McNeill	W. C. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett	M. P. Perry	447	5	3

41	1894	Greensboro	106	W. H. H. Cobb	J. A. Hodge, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett	M. P. Perry	454	5	3
42	1895	Goldsboro	.....	J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett	M. P. Perry	436	7	3
43	1896	Winston-Salem	158	R. L. Payne	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley.	R. D. Jewett	M. P. Perry	452	7	3
44	1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M. P. Perry	406	6	3
45	1898	Charlotte	.....	Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry	437	6	21
46	1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	Geo. W. Pressley	G. T. Sikes	489	6	21
47	1900	Tarboro	115	George W. Long	C. M. Poole, James M. Parrott, T. B. Williams, W. D. Hilliard.	Geo. W. Pressley	G. T. Sikes	482	6	21
48	1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell.	Geo. W. Pressley	G. T. Sikes	515	5	18
49	1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott.	Geo. W. Pressley	G. T. Sikes	546	5	20
50	1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes	530	6	19
51	1904	Raleigh	326	H. B. Weaver	John Hey Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes	1,033	8	17
52	1905	Greensboro	361	David T. Tayloe	C. A. Julian, John T. Burrus, I. W. Faison.	J. Howell Way	G. T. Sikes	1,175	8	17
53	1906	Charlotte	406	Ed. C. Register	L. B. McBrayer, W. H. Cobb, W. O. Spencer.	J. Howell Way	G. T. Sikes	1,234	8	16
54	1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLoughlin, W. F. Hargrave.	David A. Stanton	H. McK. Tucker	888	8	16
55	1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H. Dixon.	David A. Stanton	H. McK. Tucker	998	7	28
56	1909	Asheville	337	J. F. Highsmith	C. M. Poole, D. A. Garrison, D. O. Dees.	David A. Stanton	H. McK. Tucker	1,067	7	25
57	1910	Wrightsville Beach		J. A. Burroughs*	E. J. Wood, John Q. Myers, L. D. Wharton.	David A. Stanton	H. D. Walker	1,080	8	35
			276	E. J. Wood	J. V. McGougan, W. E. Warren, L. N. Glenn.	David A. Stanton	H. D. Walker	880	8	45
58	1911	Charlotte	412	C. M. VanPoole	J. P. Munroe, W. P. Horton, J. G. Murphy.	David A. Stanton	H. D. Walker	950	8	44
59	1912	Hendersonville	296	A. A. Kent	F. R. Harris, E. S. Bulluck, L. B. Morse.	John A. Ferrell	H. D. Walker	1,128	8	47
60	1913	Morehead City	232	J. P. Munroe	E. T. Dickinson, J. T. J. Battle, D. E. Sevier.	John A. Ferrell	H. D. Walker	1,228	8	47
61	1914	Raleigh	431	J. M. Parrott	J. J. Phillips, C. W. Moseley, S. M. Crowell.	John A. Ferrell	H. D. Walker	1,221	9	68
62	1915	Greensboro	443	L. B. McBrayer	J. L. Nicholson, L. N. Glenn, W. H. Hardison.	Benj. K. Hays	W. M. Jones	1,228	10	79
63	1916	Durham	406	M. H. Fletcher	D. J. Hill, J. L. Spruill, J. H. Shuford.	Benj. K. Hays	W. M. Jones	1,271	11	81
64	1917	Asheville	280	Charles O'H Laughinghouse	Wm. deB. MacNider, Jos. B. Greene, Ben F. Royal.	Benj. K. Hays	W. M. Jones	.....	.....	.....
65	1918	Pinehurst	192	I. W. Faison	J. W. Halford, T. W. Davis, A. McN. Blair.	Secy-Treas. Benj. K. Hays	Acting L. B. McBrayer	1,306	11	117
66	1919	Pinehurst	335	Cyrus Thompson	H. D. Walker, F. Stanley Whitaker, Thos. I. Fox.	Benj. K. Hays	L. B. McBrayer	1,496	12	117
67	1920	Charlotte	479	C. V. Reynolds	C. S. Lawrence, W. H. Ward, J. M. Manning.	Benj. K. Hays	L. B. McBrayer	1,497	12	117
68	1921	Pinehurst	404	T. E. Anderson		Benj. K. Hays	L. B. McBrayer			

EARLY HISTORY OF THE NORTH CAROLINA MEDICAL SOCIETY FROM ORGANIZATION TO 1804

Date	Place	President	Vice-President	Corresponding Secretary	Secretary	Recording Secretary	Treasurer	Censors
Dec. 24, 1799, or April 16, 1800	Raleigh	Richard Fenner	Nathaniel Loomis. John Claiborne	Calvin Jones		Wm. B. Hill	Cargill Massenburg	Sterling Wheaton James Webb Jas. John Pasteur Jason Hand
Dec. 1, 1800	Raleigh	Richard Fenner			Sterling Wheaton			
Dec. 1, 1801	Raleigh	John C. Osborne	Thomas Mitchell Richard Fenner	Calvin Jones	Sterling Wheaton		Cargill Massenburg	James Webb John Sibley
1802	Raleigh	John C. Osborne		Calvin Jones				
1803	Raleigh	John C. Osborne		Calvin Jones				
1804	Raleigh	John C. Osborne		Calvin Jones				

Charles H. Dickson, President, Wilmington.....1859-1866
Charles E. Johnson, Raleigh.....1859-1866
Caleb Winslow, Hertford.....1859-1866
Otis F. Manson, Townsville.....1859-1866
William H. McKee, Raleigh.....1859-1866
Christopher Happoldt, Morganton.....1859-1866
J. Graham Tull, New Bern.....1859-1866
Samuel T. Iredell, Secretary.....1859-1866

N. J. Pittman, President, Tarboro.....1866-1872
E. Burke Haywood, Raleigh.....1866-1872
R. H. Winborne, Edenton.....1866-1872
S. S. Satchwell, Rocky Point.....1866-1872
J. J. Summerell, Salisbury.....1866-1872
R. B. Haywood, Raleigh.....1866-1872
M. Whitehead, Salisbury.....1866-1872
J. F. Shaffner, Salem.....1866-1872
William Little, Secretary.....1866-1872

Charles J. O'Hagan, President, Greenville.....1872-1878
W. A. B. Norcom, Edenton.....1872-1878
C. Tate, Murphy.....1872-1878
George A. Foote, Warrenton.....1872-1878
J. W. Jones, Tarboro.....1872-1878
R. L. Payne, Lexington.....1872-1878
Charles Duffy, Jr., Secretary, New Bern.....1872-1878

P. E. Hines, President, Raleigh.....1878-1884
T. D. Haigh, Fayetteville.....1878-1884
George L. Kirby, Goldsboro.....1878-1884
Thomas F. Wood, Wilmington.....1878-1884
Joseph Graham, Charlotte.....1878-1884
H. B. Bahnson, Secretary, Salem.....1878-1884
R. H. Lewis, Raleigh.....1880-1884

William R. Wood, President, Scotland Neck.....1884-1890
A. W. Knox, Raleigh.....1884-1890
Francis Duffy, New Bern.....1884-1890
P. L. Murphy, Morganton.....1884-1890
Willis Alston, Littleton.....1884-1890
W. H. J. Bellamy, Secretary, Wilmington.....1884-1890
J. A. Reagan, Weaverville.....1884-1890
R. L. Payne, Norfolk, Va.....1890-1892
George W. Parefoy, Asheville.....1890-1892
George G. Thomas, Wilmington.....1890-1894

Robert S. Young, Concord.....1890-1894
George W. Long, Graham.....1890-1894

W. H. Whitehead, President, Rocky Mount.....1890-1896
L. J. Picot, Secretary, Littleton.....1890-1896

Julian M. Baker, President, Tarboro.....1892-1898
H. B. Weaver, Asheville.....1892-1898
T. S. Burbank, Wilmington.....1894-1898
J. M. Hayes, Greensboro.....1894-1897
D. T. Tayloe, President, Washington.....1896-1902
R. H. Whitehead, Chapel Hill.....1896-1897
Thomas E. Anderson, Secretary, Statesville.....1896-1900
Kemp P. Battle, Jr., Raleigh.....1897-1902
J. Howell Way, Secretary, Waynesville.....1897-1902
W. H. H. Cobb, Goldsboro.....1898-1902
Albert Anderson, Raleigh.....1898-1902

E. C. Register, President, Charlotte.....1898-1902
Thomas S. McMullan, Hertford.....1900-1902
John C. Walton, Richmond, Va.....1900-1902
George W. Pressley, Secretary, Charlotte.....1902-1906

A. A. Kent, President, Lenoir.....1902-1908
G. T. Sikes, Secretary, Grissom.....1906-1908
Charles O'Hagan Laughinghouse, President, Greenville.....1902-1908
M. H. Fletcher, President, Asheville.....1902-1908
James M. Parrott, Kinston.....1902-1908
J. T. J. Battle, Greensboro.....1902-1908
Frank H. Russell, Wilmington.....1902-1908

John Bynum, President, Winston-Salem.....1908-1914
John C. Rodman, Washington.....1908-1914
Benjamin K. Hays, Secretary.....1908-1914
L. B. McBrayer, Asheville.....1908-1914
William W. McKenzie, Salisbury.....1908-1914
Henry H. Dodson, Greensboro.....1908-1914
J. L. Nicholson, Richlands.....1908-1914

J. Q. Myers, President, Charlotte.....1914-1920
J. F. Highsmith, Fayetteville.....1914-1920
H. A. Royster, Secretary, Raleigh.....1914-1920
E. G. Moore, Elm City.....1914-1920
J. G. Blount, Washington.....1914-1920
M. L. Stevens, Asheville.....1914-1920
*Charles T. Harper, Wilmington.....1914-1915

BOARD OF MEDICAL EXAMINERS, 1920-1926

J. G. Murphy, Wilmington, Pharmacology, Materia Medica, and Therapeutics.
L. A. Crowell, President, Lincolnton, Anatomy and Embryology.
L. N. Glenn, Gastonia, Surgery.
K. P. B. Bonner, Secretary, Morehead City, Obstetrics, Gynecology, and Pediatrics.
W. P. Holt, Duke, Practice of Medicine.
W. M. Jones, Greensboro, Chemistry, Physiology and Hygiene.
C. A. Shore, Raleigh, Pathology, Bacteriology, Histology.

*Died 1915.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH
FROM ORGANIZATION IN 1877 TO 1919

Name	Address	Appointed by	Term
S. S. Satchwell, M.D., President	Rocky Point	State Society	1877 to 1878
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M.D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M.D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M.D.	Raleigh	State Society	1877 to 1878
George A. Foote, M.D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M.D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1878 to 1884
Charles J. O'Hagan, M.D., President	Greenville	State Society	1878 to 1882
George A. Foote, M.D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M.D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M.D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1881 to 1887
M. Whitehead, M.D., President	Salisbury	State Society	1881 to 1884
J. M. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President	Wake Forest	State Society	1883 to 1889
John McDonald	Washington	State Society	1883 to 1889
S. H. Lyle, M.D.	Franklin	Gov. T. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. Jarvis	1883 to 1886
R. H. Lewis, M.D.	Raleigh	State Board of Health	1884 to 1893
Thomas F. Wood, Secretary	Wilmington	State Society	1885 to 1887
William D. Hilliard, M.D.	Asheville	State Society	1885 to 1891
Arthur Winsow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary	Raleigh	State Society	1887 to 1897
H. T. Bahnson, M.D., President	Winston-Salem	State Society	1887 to 1893
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1888
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1887 to 1889
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.	Henderson	Gov. D. G. Fowle	1888 to 1891
F. T. Venable, Ph.D., Chemist	Chapel Hill	Gov. D. G. Fowle	1888 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1893
J. A. Hodges, M.D.	Fayetteville	State Society	1889 to 1892
J. M. Baker, M.D.	Tarboro	State Society	1889 to 1893
J. H. Tucker, M. D.	Henderson	Gov. T. M. Holt	1891 to 1893
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. T. M. Holt	1891 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. T. M. Holt	1891 to 1892
Thomas F. Wood, M.D., Secretary*	Wilmington	State Society	1891 to 1897
George G. Thomas, M.D., President	Wilmington	State Board of Health	1892 to 1897
S. Westray Battle, M.D.	Asheville	State Society	1891 to 1895
W. H. Harrell, M.D.	Williamston	State Society	1892 to 1895
John Whitehead, M.D.	Salisbury	State Board of Health	1893 to 1895
W. H. G. Lucas	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1893 to 1895
R. H. Lewis, Secretary	Raleigh	Gov. Elias Carr	1893 to 1895
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1894 to 1897
W. J. Lumsden, M.D.	Elizabeth City	State Society	1895 to 1897
John Whitehead, M.D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M.D.	Williamston	Gov. Elias Carr	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1895 to 1897
John C. Chase, Civil Engineer	Wilmington	Gov. D. L. Russell	1897 to 1899
Charles J. O'Hagan, M.D.	Raleigh	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M. D.	Goldsboro	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1897 to 1899
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
Charles O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M.D.	Wilson	Gov. D. L. Russell	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901

*Died in 1892, leaving a five-year unexpired term, which was filled by the Board.

ROSTER OF MEMBERS—Continued

Name	Address	Appointed by	Term
George G. Thomas, M.D., President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M. D.	Jackson	State Society	1899 to 1901
H. H. Dodson, M.D.	Milton	State Society	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycocok	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycocok	1901 to 1907
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycocok	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycocok	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycocok	1901 to 1905
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Jackson	State Society	1901 to 1907
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richands	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycocok	1903 to 1909
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D. President	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M.D.	Statesville	State Society	1905 to 1911
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M.D.*	Charlotte	Gov. R. B. Glenn	1907 to 1913
David T. Tayloe, M.D.	Washington	State Society	1907 to 1913
James A. Burroughs, M.D.*	Asheville	State Society	1907 to 1909
J. E. Ashcraft, M.D.	Monroe	State Board of Health	1909 to 1913
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. W. W. Kitchin	1909 to 1915
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
Thomas E. Anderson, M.D.	Statesville	State Society	1911 to 1917
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1911 to 1917
R. H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1919
A. A. Kent, M.D.	Lenoir	State Society	1913 to 1915
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919
Fletcher R. Harris, M.D.	Henderson	State Board of Health	1913 to 1919
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. Locke Craig	1915 to 1921
J. Howell Way, M.D., President	Waynesville	Gov. T. W. Bickett	1917 to 1923
E. C. Register, M.D.*	Charlotte	Gov. T. W. Bickett	1917 to 1923
Thomas E. Anderson, M.D.	Statesville	State Society	1917 to 1923
Charles O'H. Laughinhouse, M.D.	Greenville	State Society	1917 to 1923
Cyrus Thompson, M.D.	Jacksonville	State Society	1919 to 1925
Fletcher R. Harris, M.D.	Henderson	State Society	1919 to 1925
R. H. Lewis, M.D.	Raleigh	Gov. T. W. Bickett	1919 to 1925
E. J. Tucker, D.D.S.	Roxboro	Gov. T. W. Bickett	1919 to 1925
A. J. Crowell	Charlotte	Gov. T. W. Bickett	1919 to 1923

*Died leaving unexpired term. †Resigned to become member of General Assembly.

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES FOR YEARS 1908-1921

Counties	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Alamance	17	15	14	12	11	11	13	9	10	12	10	15	27	27
Alexander *a*	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Alleghany	....	....	....	....	....	....	....	2	2	....	....	....	....	....
Anson	3	1	1	1	6	8	7	....	....	....	1	3	2	1
Ashe	....	....	1	....	....	....	....	....	....	11	15	8	7	5
Avery	....	....	....	....	....	....	8	7	9	9	7	6	4	5
Beaufort	15	11	11	16	15	14	14	14	14	10	11	10	14	12
Bertie	4	4	5	2	2	2	3	3	3	3	5	5	10	9
Bladen	3	3	3	4	4	5	7	7	6	9	8	9	8	7
Brunswick	....	4	2	2	2	5	4	5	....	....	2	2	2	1
Buncombe	48	54	58	63	64	69	68	70	71	74	76	81	83	92
Burke	9	10	13	12	11	13	15	17	17	16	17	6	11	12
Cabarrus	17	16	18	21	21	19	22	23	25	20	22	19	20	19
Caldwell	12	12	13	12	10	12	12	11	7	9	13	12	10	10
Camden *b*	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Carteret	10	7	7	6	7	6	7	7	9	7	4	7	9	9
Caswell	3	2	1	1	1	1	1	1	1	1	1	3	2	2
Catawba	9	12	12	....	....	....	....	15	13	18	....	5	18	16
Chatham	1	2	2	6	....	14	15	12	11	11	11	7	10	11
Cherokee	....	9	6	7	9	8	7	10	9	11	10	6	10	10
Chowan	....	....	....	7	5	8	9	7	4	3	....	6	8	7
Clay *c*	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cleveland	14	13	13	14	15	15	16	13	13	16	16	17	19	16
Columbus	8	8	8	10	12	12	14	9	11	7	1	6	10	8
Craven	14	14	14	12	14	18	15	11	8	11	7	7	6	6
Cumberland	12	17	20	20	22	23	22	24	19	17	16	15	20	24
Currituck	3	3	6	4	4	4	6	7	6	6	1	5	5	5
Dare *d*	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Davidson	12	12	13	13	15	13	17	13	9	20	20	19	18	16
Davie	6	6	6	5	6	....	....	....	6	5	4	4	4	4
Duplin	8	10	10	9	8	9	7	4	7	10	9	9	10	12
Durham-Orange	18	24	26	28	31	32	38	40	41	44	35	33	45	40
Edgecombe	8	10	10	11	11	11	13	13	13	10	10	7	15	15
Forsyth	26	30	25	29	31	32	37	39	42	45	37	37	57	62
Franklin	10	9	11	11	11	10	10	12	11	10	11	11	12	10
Gaston	25	25	27	29	29	30	27	26	25	27	27	26	35	38
Gates	4	....	....	....	....	....	....	....	....	....	....	1	....	....
Graham	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Granville	11	12	12	8	13	12	14	11	16	16	14	14	15	14
Greene	5	6	6	6	5	5	5	5	6	5	2	5	6	7
Guilford	62	64	65	56	58	59	62	71	66	68	67	72	77	78
Halifax	10	7	6	2	2	11	11	7	15	8	1	7	28	24
Harnett	18	19	15	14	17	17	16	17	15	17	15	14	16	15
Haywood	11	15	13	10	11	13	15	11	11	11	9	9	11	10
Henderson-Polk	15	14	14	17	17	11	14	14	15	15	11	13	15	13
Hertford	9	8	6	2	....	8	10	4	1	5	10	10	10	10
Hoke	....	....	....	....	....	....	....	....	....	10	11	10	10	8
Hyde	5	8	6	6	6	7	7	....	....	....	1	2	1	1
Iredell-Alexander	18	18	17	12	9	9	14	16	9	20	11	11	21	18
Jackson	2	....	....	....	....	2	3	5	2	5	2	5	5	6
Johnston	15	13	15	19	18	18	19	21	19	22	16	24	22	23
Jones	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lee	....	....	....	....	....	7	8	7	8	8	6	8	8	8
Lenoir	13	9	12	6	8	9	12	14	15	16	15	17	22	19
Lincoln	8	10	10	10	11	12	13	14	11	9	11	15	16	14
Macon-Clay	4	5	....	....	....	4	4	5	5	4	6	6	6	7
Madison	11	12	....	....	10	7	8	11	9	10	....	11	11	12
Martin	9	13	13	13	12	13	14	14	15	17	12	11	16	14
McDowell	....	8	4	5	6	6	7	7	7	8	7	6	6	5
Mecklenburg	54	51	57	44	50	63	69	71	74	63	49	97	104	107
Mitchell	4	7	4	5	5	4	2	2	2	1	....	4	5	8
Montgomery	8	7	9	7	7	8	6	10	9	9	8	6	8	11
Moore	14	10	11	21	21	13	16	15	18	10	15	16	16	17
Nash	....	....	....	....	1	....	19	18	26	27	21	26	25	26
New Hanover	21	23	21	21	22	31	28	33	41	30	29	38	40	46
Northampton	9	8	11	9	1	12	12	11	10	14	11	13	10	11
Onslow	4	4	6	11	10	12	10	8	9	11	7	9	8	7
Orange *e*	1	1	1	1	1	8	....	....	....	....	....	....	....	6
Pamlico	4	5	4	4	4	5	5	5	5	5	4	4	5	6
Pasquotank-Camden-Dare	10	10	11	12	12	13	15	15	17	19	16	15	16	13
	....	....	2	2	2	2	....	....	....	....	....	1	1	1
Pender	....	....	....	....	....	....	....	....	....	....	4	3	....	....
Perquimans	8	9	9	10	11	11	8	11	13	12	....	12	10	11
Person	9	14	10	10	5	9	5	15	9	14	5	18	24	19
Pitt	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Polk *f*	....	....	....	....	....	....	....	....	....	....	....	....	....	....

STATUS OF MEMBERSHIP BY COUNTIES—(Continued)

Counties	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Randolph	9	9	10	8	9	7	12	14	11	13	11	12	13	15
Richmond	11	1	12	1	10	....	10	13	13	14	11	13	12	14
Robeson	24	20	15	22	23	35	24	16	22	16	8	31	35	34
Rockingham	5	1	16	16	16	18	19	17	10	4	15	16	20	23
Rowan	25	23	24	26	24	23	26	22	25	23	22	24	28	31
Rutherford	17	22	23	24	18	19	20	19	21	14	17	18	20	12
Sampson	11	10	11	11	12	12	14	14	18	15	10	11	13	14
Scotland	11	10	11	9	9	11	12	12	12	13	10	9	10	12
Stanly	9	8	11	10	11	11	13	14	9	14	11	11	15	12
Stokes	10	11	9	10	11	7	12	13	12	10	5	5	10	6
Surry	15	15	15	13	14	19	21	19	18	23	24	27	28	25
Swain	6	8	....	....	....	....	....	....	....	6	7	2	3	1
Transylvania	4	1	....	5	5	6	7	6	7	5	....	1	1	1
Tyrell g	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Union	14	14	14	15	16	17	16	16	12	13	15	14	16	17
Vance	8	9	12	11	11	11	10	11	13	10	4	5	11	11
Wake	44	49	53	56	54	41	53	57	62	70	56	81	68	73
Warren	2	....	....	4	5	5	5	8	7	7	6	3	8	8
Washington-Tyrell	....	....	....	....	....	....	....	....	....	....	....	....	....	10
Watauga	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wayne	13	10	....	....	16	19	13	7	17	19	18	27	28	24
Wilkes	8	8	11	11	6	9	8	7	6	9	8	10	10	11
Wilson	12	16	17	17	17	17	24	22	22	24	21	25	29	31
Yadkin	11	8	6	6	6	7	7	6	....	....	....	10	2	5
Yancey	4	3	....	....	....	....	....	....	....	....	....	3	3	1
Totals	979	1012	997	996	1036	1133	1220	1221	1228	1271	1087	1306	1497	1491

a See Iredell-Alexander; b see Pasquotank-Camden-Dare; c see Macon-Clay; d see Pasquotank-Camden-Dare; e see Durham-Orange; f see Henderson-Polk; g see Washington-Tyrell.

HONORARY FELLOWS

Adams, M. R. ..... Statesville, N. C.
Alexander, Annie L. ..... Charlotte, N. C.
*Alston, B. P. ..... Epsom, N. C.
Anderson, Albert ..... Raleigh, N. C.
Anderson, Thos. Eli ..... Statesville, N. C.
*Archey, L. M. ..... Concord, N. C.
Asbury, F. E. ..... Ashboro, N. C.
Attamore, Geo. S. ..... Stonewall, N. C.
*Bahnson, H. T. ..... Winston-Salem, N. C.
Baker, J. M. ..... Tarboro, N. C.
*Barrier, P. A. ..... Mt. Pleasant, N. C.
Battle, J. T. J. ..... Greensboro, N. C.
Battle, Kemp P. ..... Raleigh, N. C.
Battle, S. W. ..... Asheville, N. C.
Beall, Wm. P. ..... Greensboro, N. C.
*Bellamy, W. J. H. ..... Wilmington, N. C.
Boddie, N. P. ..... Durham, N. C.
Bolton, Mahlon ..... Rich Square, N. C.
*Booth, Samuel D. ..... Oxford, N. C.
*Bulluck, D. Wm. ..... Wilmington, N. C.
Caldwell, D. G. ..... Concord, N. C.
Cheatham, Archibald ..... Durham, N. C.
Clark, G. L. ..... Clarkton, N. C.
Council, J. B. ..... Salisbury, N. C.
*Croom, J. D. ..... Maxton, N. C.
Dalton, David N. ..... Winston-Salem, N. C.
De Armon, J. McC. ..... Charlotte, N. C.
*Denny, Wm. W. ..... Pink Hill, N. C.
Dillard, Jr., Richard ..... Edenton, N. C.
Dodson, H. H. ..... Greensboro, N. C.
*Duffy, Charles ..... New Bern, N. C.
*Duffy, Francis ..... New Bern, N. C.
Edgerton, Jas. L. ..... Hendersonville, N. C.
Edwards, G. G. ..... Hookerton, N. C.
Faison, I. W. ..... Charlotte. N. C.
Faison, Wm. W. ..... Goldsboro, N. C.
Fletcher, M. H. ..... Asheville, N. C.
Fox, M. F. ..... Guilford College, N. C.
*Freeman, Richard A. ..... Burlington, N. C.
Galloway, W. C. ..... Wilmington, N. C.
Gibbon, Robert L. ..... Charlotte, N. C.
Goodwin, A. W. ..... Raleigh, N. C.
*Graham, Joseph ..... Charlotte, N. C.
Graham, Wm. A. ..... Charlotte, N. C.
Griffin, J. A. ..... Clayton, N. C.
*Hall, Wright ..... Wilmington, N. C.
Hargrove, R. H. ..... Robersonville, N. C.
Harris, F. R. ..... Henderson, N. C.
Harris, I. A. ..... Alexander, R #2

Haywood, F. J. ..... Raleigh, N. C.
Haywood, Hubert ..... Raleigh, N. C.
Hicks, Wm. N. ..... Durham, N. C.
*Hill, L. H. ..... Germanton, N. C.
*Hudson, Wm. L. ..... Dunn, N. C.
Hughes, Francis W. ..... New Bern, N. C.
Hunter, L. W. ..... Charlotte, N. C., #1
Irwin, J. R. ..... Charlotte, N. C.
Jewett, Robert D. ..... Wilmington, N. C.
Johnson, N. M. ..... Durham, N. C.
Jordan, T. M. ..... Raleigh, N. C.
Knight, J. B. H. ..... Williamston, N. C.
Knox, A. W. ..... Raleigh, N. C.
Leggett, Kenelm ..... Hobgood, N. C.
Lewis, H. W. ..... Jackson, N. C.
Lewis, R. H. ..... Raleigh, N. C.
Long, Benj. L. ..... Hamilton, N. C.
*Long, Geo. W. ..... Graham, N. C.
Long, J. W. ..... Greensboro, N. C.
Love, W. J. ..... Wilmington, N. C.
McDonald, A. D. ..... Wilmington, N. C.
*McKay, A. M. ..... Summerville, N. C.
*McKay, John A. ..... Buies Creek, N. C.
*McKee, James ..... Raleigh, N. C.
McMillan, Benj. F. ..... Red Springs, N. C.
McMillan, J. D. ..... Edenton, N. C.
McMillan, J. L. ..... Red Springs, N. C.
McMillan, W. D. ..... Wilmington, N. C.
McNeill, J. Wm. ..... Fayetteville, N. C.
*McNeill, Wm. M. ..... Buies Creek, N. C.
Meisenheimer, C. A. ..... Charlotte, N. C.
*Meisenheimer, Thos. F. ..... Morven, N. C.
*Miller, J. F. ..... Goldsboro, N. C.
Monroe, W. A. ..... Sanford, N. C.
Moore, C. E. ..... Wilson, N. C.
Moore, Edwin G. ..... Elm City, N. C.
Munroe, J. P. ..... Charlotte, N. C.
*Nicholson, J. L. ..... Richland, N. C.
Nicholson, Sam T. ..... Washington, N. C.
Nobles, Jos. E. ..... Greenville, N. C.
Noble, R. J. ..... Selma, N. C.
*Pate, Wm. T. ..... Gibson, N. C.
Pemberton, Wm. D. ..... Concord, N. C.
Perry, M. P. ..... Macon, N. C.
*Pharr, T. F. ..... Concord, N. C.
Pharr, Wm. W. ..... Charlotte, N. C.
Picot, L. J. ..... Littleton, N. C.
*Prince, D. M. ..... Laurinburg, N. C.
Purefoy, G. W. ..... Asheville, N. C.
*Register, Edw. C. ..... Charlotte, N. C.

*Ritter, F. W. ..... Moyock, N. C.
Royster, W. I. ..... Raleigh, N. C.
Schonwald, J. T. ..... Wilmington, N. C.
*Shaffner, Jr., T. F. ..... Winston-Salem, N. C.
Sikes, G. T. ..... Grissom, N. C.
Smith, R. A. ..... Goldsboro, N. C.
Speight, Sr., R. H. ..... Whitakers, N. C.
Stamps, Thos. ..... Lumber Bridge, N. C.
*Stevens, J. A. ..... Clinton, N. C.
Summerell, E. M. ..... China Grove, N. C.
Tayloe, B. T. ..... Washington, N. C.
Taylor, I. M. ..... Morganton, N. C.
*Thomas, G. G. ..... Wilmington, N. C.
Trantham, H. T. ..... Salisbury, N. C.
Tull, Henry ..... Kinston, N. C.
Van Pool, C. M. ..... Salisbury, N. C.
Ward, W. H. ..... Plymouth, N. C.
Way, J. Howell ..... Waynesville, N. C.
Weaver, H. B. ..... Asheville, N. C.
Whitaker, R. A. ..... Kinston, N. C.
White, J. W. ..... Wilkesboro, N. C.
Whitehead, John ..... Salisbury, N. C.
*Whitehead, W. H. ..... Rocky Mount, N. C.
Whitfield, Wm. Cobb ..... Grifton, N. C.
Whittington, W. P. ..... Asheville, N. C.
*Williams, J. H. ..... Asheville, N. C.
Wilson, A. R. ..... Greensboro, N. C.
*Young, R. S. ..... Concord, N. C.

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*Deceased.

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

*L. McL. Tiffany ..... Baltimore, Md.
W. W. Keen ..... Philadelphia, Pa.
J. Allison Hodges ..... Richmond, Va.
*R. L. Payne ..... Norfolk, Va.
J. N. McCormack ..... Bowling Green, Ky.
R. L. Payne, Jr. ..... Norfolk, Va.
J. L. Ludlow, C.E. ..... Winston-Salem
Paul V. Anderson ..... Richmond, Va.
Stuart McGuire ..... Richmond, Va.
William J. Mayo ..... Rochester, Minn.
William Seaman Bainbridge ..... New York, N. Y.
William Sharp ..... New York, N. Y.

OFFICERS, 1920-1921

President.....Dr. Thos. E. Anderson, Statesville
First Vice-President.....Dr. C. S. Lawrence, Winston-Salem
Second Vice-President.....Dr. W. H. Ward, Plymouth
Third Vice-President.....Dr. Jno. M. Manning, Durham

OFFICERS, 1921-1922

President.....Dr. Hubert A. Royster, Raleigh
First Vice-President.....Dr. Wm. T. Parrott, Kinston
Second Vice-President.....Dr. B. C. Nalle, Charlotte
Third Vice-President.....Dr. J. R. McCracken, Waynesville
Secretary-Treasurer.....Dr. L. B. McBrayer, Sanatorium

COUNCILORS, 1919-1922

First District—Dr. B. F. Halsey.....Roper
Second District—Dr. J. C. Rodman.....Washington
Third District—Dr. J. B. Cranmer.....Wilmington
Fourth District—Dr. E. T. Dickinson.....Wilson
Fifth District—Dr. A. McNiel Blair.....Southern Pines
Sixth District—Dr. W. C. Horton.....Raleigh
Seventh District—Dr. B. J. Witherspoon.....Charlotte
Eighth District—Dr. J. K. Pepper.....Winston-Salem
Ninth District—Dr. M. R. Adams.....Statesville
Tenth District—Dr. Eugene B. Glenn.....Asheville

CHAIRMEN OF SECTIONS, 1922

Public Health and Education—
Dr. N. B. Adams, Murphy

Surgery—
Dr. T. M. Green, Wilmington

Eye, Ear, Nose and Throat—
Dr. J. M. Parrott, Kinston

Gynecology and Obstetrics—
Dr. Oren Moore, Charlotte

Pediatrics—
Dr. H. H. Harrison, Asheville

Practice of Medicine—
Dr. W. A. Bradsher, Roxboro

Chemistry, Materia Medica, and Therapeutics—
Dr. E. J. Wood, Wilmington

Committee on Obituaries—
Dr. J. T. J. Battle, Chairman

Chairman Committee on Arrangements—
Dr. S. D. Craig, Winston-Salem

PLACE OF MEETING, 1922
Winston-Salem, April 25-26-27.

COMMITTEES AND REPORTS

Report of Secretary-Treasurer.

Report of Finance Committee.

Report of Committee on Publication.

Report of Committee on Scientific Work.

Report of Committee on Public Policy and Legislation.

Report of Committee on Single Examining Board.

Report of Committee on Public Health Administration.

Report of Committee to Confer with North Carolina Teachers' Assembly.

Report of Committee on the President's Address.

Report of Board of Councilors.

Report of Committee on The Menace of Drug Addiction.

Report of Nominating Committee.

Report of Committee to Confer with State Board of Health in Regard to Tonsil Clinics (Committee appointed by Section Eye, Ear, Nose and Throat).

RESUME OF PROGRAM

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

MONDAY, APRIL 25, 1921

9:30 a. m.—North Carolina Health Officers' Association.
2:30 p. m.—North Carolina Health Officers' Association (continuing).
8:30 p. m.—North Carolina Health Officers' Association (continuing).

TUESDAY, APRIL 26, 1921

9:00 a. m.—Opening Exercises (Music Room).
10:00 a. m.—North Carolina Hospital Association (Parlor).
11:00 a. m.—Section on Public Health and Education (Music Room).
11:00 a. m.—Section on Pediatrics (Dutch Room).
2:30 p. m.—Meeting of House of Delegates (Music Room, Holly Inn).
2:30 p. m.—North Carolina Hospital Association (Continuing—Parlor).
2:30 p. m.—Section on Pediatrics (Continuing—Dutch Room).
2:30 p. m.—Section on Practice of Medicine (Music Room).
2:30 p. m.—Section on Eye, Ear, Nose and Throat (Card Room).
8:00 p. m.—General Session (Music Room).

WEDNESDAY, APRIL 27, 1921

9:00 a. m.—Section on Surgery (Parlor).
9:00 a. m.—Section on Chemistry, Materia Medica, and Therapeutics (Music Room).
9:00 a. m.—Section on Eye, Ear, Nose and Throat (Card Room).
12:00 m.—Conjoint Session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health.
3:00p. m.—Horse Races.
6:00 p. m.—7:00 p. m.—Meeting of Secretaries of County Societies (Parlor).
8:00 p. m.—Report of Obituary Committee (Parlor).
9:00 p. m.—Ball.

THURSDAY, APRIL 28, 1921

9:00 a. m.—Section on Gynecology and Obstetrics (Music Room).
9:00 a. m.—Section on Anatomy, Physiology and Bacteriology (Card Room).
9:00 a. m.—Section on Surgery—continuing (Parlor).
11:00 a. m.—Report of House of Delegates (Music Room).

PROGRAM

GENERAL SESSIONS

TUESDAY, APRIL 26, 1921, 9:00 A. M.

OPENING EXERCISES—MUSIC ROOM, CAROLINA HOTEL

Call to Order:
Dr. L. B. McBrayer, Chairman Committee on Arrangements, Sanatorium, N. C.

Invocation:
G. A. Cheatham, D. D., Pinehurst.

Address of Welcome:
Mr. Leonard Tufts, The Beloved, Owner of Pinehurst.

Address of Welcome:
Dr. M. E. Street, President of Moore County Medical Society, Glendon, N. C.

Address of Welcome:
Hon. U. L. Spence, of the Carthage Bar.

Response:
Dr. Wm. deB. MacNider, Chapel Hill, N. C.

President's Address:
Dr. T. E. Anderson, Statesville, N. C.

TUESDAY, APRIL 26, 1921, 2:30 P. M.

MUSIC ROOM, HOLLY INN

Meeting of House of Delegates.
Time and Place of subsequent meetings to be fixed by House of Delegates.

TUESDAY, APRIL 26, 1921, 8:00 P. M.

MUSIC ROOM

Governor Cameron Morrison, Presiding

1. The Pathology of Gastric and Duodenal Ulcers and the Physiology following Posterior Gastroenterostomy (with lantern slides), Dr. Stanley P. Reiman, Pathologist, Lankenau Hospital, Philadelphia.
2. Dr. Stuart McGuire, Richmond, Va.
3. Social Responsibilities of Modern Medicine, Dr. Frederick R. Green, Secretary, Council on Health and Public Instruction, Chicago.

WEDNESDAY, APRIL 27, 1921, 12 M.

MUSIC ROOM

Conjoint session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health (Dr. J. Howell Way, President of State Board of Health, presiding).

MEMBERS OF THE STATE BOARD OF HEALTH

Dr. J. Howell Way, President, Waynesville, N. C.
Dr. Richard H. Lewis, Raleigh, N. C.
Col. J. L. Ludlow, C. E., Winston-Salem, N. C.
Dr. Thomas E. Anderson, Statesville, N. C.
Dr. Chas. O'H. Laughinghouse, Greenville, N. C.
Dr. F. R. Harris, Henderson, N. C.
Dr. Cyrus Thompson, Jacksonville, N. C.
Dr. A. J. Crowell, Charlotte, N. C.
Dr. E. J. Tucker, Roxboro, N. C.

EXECUTIVE STAFF OF THE STATE BOARD OF HEALTH

Secretary-Treasurer—Dr. W. S. Rankin, Raleigh, N. C.
Director Public Health Education—Mr. R. B. Wilson, Raleigh, N. C.
Director of Bureau of Tuberculosis—Dr. L. B. McBrayer, Sanatorium, N. C.
Director of Bureau of Medical Inspection of Schools—Dr. G. M. Cooper, Raleigh, N. C.
Director of Bureau of Public Health Nursing and Infant Hygiene—Miss Rose M. Ehrenfeld, R. N., Raleigh, N. C.
Deputy State Registrar—Dr. F. M. Register, Raleigh, N. C.
Director of Bureau of County Health Work—Dr. K. E. Miller, Raleigh, N. C.
Director of Bureau of Inspection and Sanitary Engineering—Mr. H. E. Miller, Raleigh, N. C.
Director of Bureau of Venereal Diseases—Dr. Millard Knowlton, Raleigh, N. C.
Director of State Laboratory of Hygiene—Dr. C. A. Shore, Raleigh, N. C.
State Epidemiologist—Dr. J. S. Mitchener, Raleigh, N. C.

ORDER OF BUSINESS

Report of work accomplished and recommendations.
Discussions.
New business.
Adjournment.

MEETING OF SECRETARIES OF COUNTY SOCIETIES

WEDNESDAY, APRIL 27, 1921, 6:00 TO 7:00 P. M.

PARLOR

Dr. T. E. Anderson, President, Statesville, N. C. Presiding

1. Importance of Medical Organizations—Dr. K. P. B. Bonner, Morehead City, N. C.
2. How to Get 100% Membership in a County Society—Dr. W. C. Horton, Secretary, Wake County Society; Dr. J. E. Cocke, Secretary, Buncombe County Society; Dr. J. Lester Ransom, Secretary, Mecklenburg County Society; Dr. E. R. Hardin, Secretary, Robeson County Society; Dr. P. J. Chester, Secretary, Pitt County Society; Dr. Moir S. Martin, Secretary, Surry County Society; Dr. F. H. Garriss, Secretary, Bertie County Society.
3. Importance of Sending in Reports and Answering Letters and Telegrams Promptly.—Dr. L. B. McBrayer, Sanatorium, N. C.

WEDNESDAY, APRIL 27, 1921, 8:00 P. M.

PARLOR

Report of Obituary Committee—Dr. E. G. Moore, Chairman, Elm City, N. C.; Dr. E. J. Wood, Wilmington, N. C.; Dr. B. O. Edwards, Asheville, N. C.; Dr. N. D. Bitting, Durham, N. C.

Luncheon served in the Dining Room, Carolina Hotel, 1:00 to 2:00 p. m.

THURSDAY, APRIL 28, 1921, 11:00 A. M.

MUSIC ROOM

Report of House of Delegates.
Installation of Officers.
Resolutions.
Adjournment.

SECTION MEETINGS

TUESDAY, APRIL 26, 1921, 11:00 A. M.

MUSIC ROOM

Section on Public Health and Education

Dr. C. P. Mangum, Chairman, Kinston, N. C.

(This program must be completed by 1 p. m.)

1. The Malarial Infected Home—Dr. W. T. Parrott, Kinston, N. C.
2. Sanitation of the Rural Home—Dr. H. L. Cook, Fayetteville, N. C.
3. Relation of Syphilis to Infant Mortality—Dr. Millard Knowlton, Raleigh, N. C.
4. Barnacles of Public Health Work—Dr. W. A. McPhaul, Health Officer, Charlotte, N. C.
5. Registration of Prospective Mothers—Miss Rose M. Ehrenfeld, Raleigh, N. C.

TUESDAY, APRIL 26, 1921, 11:00 A. M.

DUTCH ROOM

Section on Pediatrics

Dr. Yates Faison, Chairman, Charlotte, N. C.

1. Epidemic Acid-Intoxication—Dr. Yates Faison, Charlotte, N. C.
2. Some Modern Practices in Pediatrics—Dr. Albert S. Root, Raleigh, N. C.
3. Our Changing Attitude Toward the Nutritional Disturbances—Dr. William Weston.
4. Preventive Pediatrics and the Nutrition Class—Dr. Frank Howard Richardson, Asheville, N. C.
5. Infant Mortality—Dr. A. McR. Crouch, Wilmington, N. C.
6. A Plea for More General Use of Toxin-Antitoxin—Dr. John R. Ashe, Charlotte, N. C.
7. Subject Unannounced—Dr. H. H. Harrison, Asheville, N. C.

Luncheon served in the Dining Room of the Carolina Hotel, 1 to 2 p. m.

TUESDAY, APRIL 26, 1921, 2:30 P. M.

DUTCH ROOM

Section on Pediatrics

(Continuing)

(This program must be completed by time of adjournment of this session.)

TUESDAY, APRIL 26, 1921, 2:30 P. M.

MUSIC ROOM

Section on Practice of Medicine

Dr. F. M. Hanes, Chairman, Winston-Salem, N. C.

(This section must finish program by time of adjournment of this session.)

1. Heart Diagnosis—Dr. Thompson Frazer, Asheville, N. C.
2. The Estimation of Cardiac Competence—Dr. J. M. Northington, Charlotte, N. C.
3. Aneurysm—Dr. T. M. Stanton, High Point, N. C.
4. The Abdominal Symptoms of Angina Pectoris—Dr. Hubert Haywood, Jr., Raleigh, N. C.
5. Report of Three Cases of Interesting Blood Conditions—Dr. R. L. Felts, Durham, N. C.
6. The Earlier Diagnosis of Tabes—Dr. E. J. Wood, Wilmington, N. C.
7. Hysteria—Dr. F. R. Taylor, High Point, N. C.
8. The Pathology of the Kidney when an Acute Injury is Superimposed on a Chronic Glomerulo-Nephritis: (Lantern Slides)—Dr. W. deB. MacNider, Chapel Hill, N. C.
9. Basal Metabolism and Blood Sugar in Hyperthyroidism and Pulmonary Tuberculosis, with a Method for the Indirect Estimation of an Increased Blood Sugar—Dr. R. McBrayer, Sanatorium, N. C.
10. The Treatment of Toxic Goiter (hyperthyroidism) by Radiation—Dr. R. H. Lafferty, Charlotte, N. C.
11. Lethargic Encephalitis—Dr. A. A. Barron, Charlotte, N. C.
12. Further Observation on a Direct Method of Biliary Drainage—Dr. Heath Nisbet, Charlotte, N. C.
13. The Menace of Drug Addiction—Suggestions for Its Eradication—Dr. L. E. Bisch, Asheville, N. C.

To be followed by a thorough general discussion of the physicians' part in enforcing the anti-narcotic law. The Government will be represented by Dr. C. A. Neves, Charlotte, and Mr. E. B. Menzies, Hickory, N. C.

14. Title to be Given—Dr. Thomas R. Boggs, Baltimore, Md. (By invitation.)
15. A Country Doctor's Experience with the Flu—Dr. N. P. Coppedge, Biscoe, N. C.
16. Roentgen Rays in Acute Chest Condition—Dr. F. M. Hodges, Richmond, Va.

TUESDAY, APRIL 26, 1921, 2:30 P. M.

CARD ROOM

Section on Eye, Ear, Nose and Throat

Dr. H. H. Briggs, Chairman, Asheville, N. C.

1. The Early Diagnosis of Pituitary Tumor from the Eye Findings—Dr. Henry L. Sloan, Charlotte, N. C.
2. Some Early Observations in Refractions—Dr. H. M. Bonner, Raleigh, N. C.
3. Sympathetic Ophthalmia—Dr. J. B. Wright, Raleigh, N. C.
4. The Safe Removal of Tonsils, where Surgery is Contra-Indicated, by the High Frequency Current—Dr. P. P. McCain, Sanatorium, N. C.
5. Enucleation Under Local Anæsthesia, with Report of Two Cases—Dr. Russell S. Beam, Lumberton, N. C.
6. Repair of Stenson's Duct, Report of Case—Dr. Ira M. Hardy, Kinston, N. C.
7. Lympho-sarcoma of Both Tonsils, Patient 47 Years of Age—Dr. W. W. Sawyer, Elizabeth City, N. C.
8. Diseases of Nasal Accessory Sinuses—Dr. O. J. Houser, Charlotte, N. C.
9. Report of Interesting Case of Nasal Polypus—Dr. J. G. Johnston, Charlotte, N. C.

10. The Preventive Measures of Ear Surgery—Dr. T. W. Davis, Winston-Salem, N. C.
11. Symposium on Mastoiditis (a) Conservative Mastoid Surgery—Dr. J. G. Murphy.
    (b) Lateral Sinus Trombosis Complicating Acute Mastoiditis—Dr. H. H. Briggs, Asheville, N. C.

Luncheon wll be served in the Dining Room of the Carolina Hotel, 1 to 2 p. m.

WEDNESDAY, APRIL 27, 1921, 9:00 P. M.

CARD ROOM

Section on Eye, Ear, Nose and Throat

(Continuing)

WEDNESDAY, APRIL 27, 1921, 9:00 A. M.

PARLOR CAROLINA HOTEL

Section on Surgery

Dr. J. T. Burrus, Chairman, High Point, N. C.

(If desired, this section can be continued Thursday morning in the Parlor of the Carolina.)

1. A Review of the History of Surgery Previous to the Seventeenth Century—Dr. John T. Burrus, High Point, N. C.
2. Some Phases of Gall Bladder Surgery—Dr. N. D. Bitting, Durham, N. C.
3. Chronic Gastro and Duodinal Ulcers—Dr. C. S. Lawrence, Winston-Salem, N. C.
4. Explanation of Some Obscure Abdominal Conditions (Lantern Slides)—Dr. Thos. M. Green, Wilmington, N. C.
5. Surgical Treatment for the Permanent Cure of Major Trigeminal Neuralgia (Lantern Slides)—Dr. C. C. Coleman, Richmond, Va.
6. Radium Therapy as an Adjunct in Surgery in Inoperable Malignancy—Drs. W. D. and A. W. James, Hamlet, N. C.
7. Subject Unannounced—Dr. C. C. Phillips, Charlotte, N. C.
8. Calcification of the Ovaries with Report of a Case—Dr. T. C. Bost, Charlotte, N. C.
9. Surgical Treatment of Tuberculosis of Spine—Dr. Alonzo Myers, Charlotte, N. C.
10. Penetrating and Perforating Wounds of the Abdomen—Dr. Foy Robinson, Durham, N. C.
11. Intestinal Obstructions—Dr. L. A. Crowell, Lincolnton, N. C.
12. Appendicitis Difficulties in Atypical Cases—Dr. C. E. Wilkerson, Randleman, N. C.
13. Surgical Significance of Vomiting—Dr. R. L. Gibbon, Charlotte, N. C.
14. Infection of the Bones (Lantern Slides)—Dr. W. F. Cole, Greensboro, N. C.
15. Subject Unannounced—Dr. Shuford, Hickory, N. C.
16. Ruptured Ulcers of Stomach and Duodenum, with Report of Nine Cases—Drs. Williams and Tankersley, Greensboro, N. C.
17. Symposium on Cancer—Dr. J. W. Long, Greensboro, N. C.

18. Early Importance of Diagnosis of Cancer of the Uterus—Dr. J. F. Highsmith, Fayetteville, N. C.
19. Cancer of the Prostrate—Dr. A. J. Crowell and L. C. Todd, Charlotte, N. C.
20. Cancer of the Thyroid Glands—Dr. A. J. Brenizer, Charlotte, N. C.
21. Treatment of Cancer with Radium—Dr. Curtis F. Burnham, Baltimore, Md.

WEDNESDAY, APRIL 27, 1921, 9:00 A. M.

MUSIC ROOM

Section on Chemistry, Materia Medica and Therapeutics

Dr. Ernest S. Bulluck, Chairman, Wilmington, N. C.

1. Tartar Emetic in Parasitic Diseases—Dr. E. J. Wood, Wilmington, N. C.
2. Treatment of Chronic Heart Disease—Dr. Douglas VanderHoof, Richmond, Va.
3. The Treatment of Heart Disease Before Decompensation—Dr. J. M. Hutcheuson, Richmond, Va.
4. The Relation of the Phenol-Sulphon-Pthalein Functional Kidney Test and Retained Blood Nitrogen to Systolic and Diastolic Blood Pressure in the Prognosis in Cardio-Renal Disease—Dr. Wm. Allan, Charlotte, N. C.
5. The Value of Electric Light in Neuritis and in Infections—Dr. J. Allison Hodges, Richmond, Va.
6. Further Observation of Pituitary Epilepsy—Dr. Beverley R. Tucker, Richmond, Va.
7. Drug Therapy in Epilepsy—Dr. Victor R. Small, Raleigh, N. C.
8. The Treatment of the Emotions in Young People—Dr. Tom A. Williams, Washington, D. C.
9. On Rebellion Against Repression—Dr. James K. Hall, Richmond, Va.
10. Neurasthenia—Dr. W. C. Ashworth, Greensboro, N. C.
11. Suggestive Therapeutics Capitalized and Exploited—Dr. J. T. J. Battle, Greensboro, N. C.
12. Radium Therapy, Dr. Samuel Orr Black, Spartanburg, S. C.
13. The Treatment of Sarcoma with Radium (Lantern Slides)—Dr. S. W. Budd, Richmond, Va.
14. The Physical Properties of Radium—Dr. Clyde K. Hasley, Charlotte, N. C.

WEDNESDAY, APRIL 27, 1921, 12:00 M.

MUSIC ROOM

Conjoint Session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health.

Luncheon served in the Dining Room, Carolina Hotel, 1:00 to 2:00 P. M.

WEDNESDAY, APRIL 27, 1921, 3:00 to 5:00 P. M.

HORSE RACES

Compliments of the Pinehurst Jockey Club. Running, Hurdle, Driving, Chariot Races. Dr. I. W. Faison, Dr. E. B. Glenn, Dr. E. J. Wood.

WEDNESDAY, APRIL 27, 1921, 9:00 P. M.

Ball—Carolina Music Room.

THURSDAY, APRIL 28, 1921, 9:00 A. M.

MUSIC ROOM

Section on Gynecology and Obstetrics

Dr. Moir S. Martin, Chairman, Mount Airy, N. C.

1. Pyelitis of Pregnancy and Puerperium—By Dr. J. D. Highsmith, Fayetteville, N. C.
2. Ectopic Pregnancy, Observations Drawn from a Study of 79 Cases—By Dr. J. W. Tankersley, Greensboro, N. C.
3. Report of Two Unusual Cases of Pregnancy—By Dr. J. R. Parker, Burlington, N. C.
4. The Influence of the Endocrine Glands Upon Certain Gynecological Conditions—By Dr. J. E. Stokes, Salisbury, N. C.
5. The Relation of Preventive Medicine to Gynecology—By Dr. Owen Smith, High Point, N. C.
6. Uterine Retrodisplacements (Lantern Slides)—By Dr. Parron Jarboe, Greensboro, N. C.
7. Malformation of the Uterus (Lantern Slides)—By Dr. H. A. Royster, Raleigh, N. C.
8. The Use of Intravenous Glucose in Certain Post-Operative Conditions—By Dr. A. deTalma Valk, Winston-Salem, N. C.
9. Parovarian Varicocele—By Dr. L. S. Booker, Durham, N. C.
10. Pelvic Infection—By Dr. B. S. Herring, Wilson, N. C.
11. Conservation of Ovaries or Indications for Cophorectomy—By Dr. E. S. Boyce, Rocky Mount, N. C.

THURSDAY, APRIL 28, 1921, 9:00 A. M.

CARD ROOM

Section on Anatomy, Physiology, Pathology and Bacteriology

Dr. Paul Ringer, Chairman, Asheville, N. C.

1. The Three R's in Medicine—Dr. Paul Ringer, Asheville, N. C.
2. Tuberculosis and Pseudo-Tuberculosis—Dr. James B. Bullitt, Chapel Hill, N. C.

THURSDAY, APRIL 28, 1921, 11:00 A. M.

MUSIC ROOM

Report of House of Delegates.
Introduction of President 1921-22.
Resolutions.
Adjourn Sine Die.

TRANSACTIONS

OF THE

SIXTY-EIGHTH ANNUAL SESSION OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

OPENING EXERCISES

TUESDAY MORNING, APRIL 26, 1921

DR. L. B. MCBRAYER, Sanatorium, Chairman, Committee on Arrangements: The 68th Annual Session of the Medical Society of the State of North Carolina will be in order, and we will stand during the invocation by Dr. T. A. Cheatham, of Pinehurst.

INVOCATION

DR. CHEATHAM:

O God, our gracious Heavenly Father, as we look out upon the beautiful world that Thou hast provided for us, Thy children, we see all nature bursting into life, we hear the birds singing, we see the flowers blooming, and our hearts thrill under the influence of this life and beauty, and as we think of Thee, the Author and Creator of it all, we are grateful that we can call ourselves Thy children. We feel that it is Thy will that we should be happy and well and strong. We are sure of this because Thy Son, our Lord, went about healing the sick and giving strength to the weak; and because He was the Great Physician, and we know that He pronounced a blessing upon those who minister to the least of Thy children, we feel that it is a worthy calling to minister to the sick and afflicted. As we consider the desperate plight of these sick ones, we wish to dispense this life in larger measure. To that end we have come to take counsel together, to study and plan, so that we may be used of Thee in making stronger and healthier men and women. May we appreciate the deep consciousness of our task, may we have gentleness and love. Endue us with wisdom and skill. Grant that we may have the spirit of the Good Physician as we minister to every pillow and touch with loving hand Thy sick and suffering children. May Thy gracious Presence preside over this meeting, so that we may go forth strengthened and renewed and consecrated to the noble work of giving life to men.

Through Jesus Christ our Lord, AMEN.

Dr. L. B. McBrayer:

We are going to have a few words this morning from Mr. Leonard Tufts, the Beloved, owner of Pinehurst. I present Mr. Tufts.

ADDRESS OF WELCOME

Mr. Leonard Tufts:

It is certainly a great honor and a great pleasure to welcome you here again, and I and my organization here feel very much complimented that you should come back for the third time.

It has occurred to me that possibly some little history of what has happened here at Pinehurst and how the place was started might be interesting to you medical men.

In 1895 my father, James W. Tufts, bought this land down here at Pinehurst, which was then just sand and hen's nest grass and a few scattered pines. In 1896 Pinehurst was opened with just a few cottages and Holly Inn and a few other buildings. At that time the word "resort" meant a tubercular resort, and the word was almost synonymous with a tubercular place. My father was a very hard working man, and had always been an invalid, and he had always found it necessary to take long vacations in summer and winter. In that way he traveled around a good deal both in New England and in the South. He heard of Southern Pines, and went there and was very much impressed with the cures that had been made there. As I have said, resorts and tuberculosis always went together in those days. In 1897 my father had quite a severe operation. It does not seem possible, but it was the second intestinal operation for adhesions. It was performed by Dr. Harrington and Dr. Cabot, of Boston, who were then at the head of their profession. They were very much interested in the case, and came often to see how he was getting on. They became interested in father and he in them, and he told them what he was doing down here in North Carolina. They told him that instead of making it a resort for the tuberculous he would do a much bigger thing by cutting out all cases of tuberculosis. It seems strange to us now, but at that time it was necessary to send out circulars describing tuberculosis and stating that it is a contagious disease. Of course, physicians knew that it was contagious, but the people generally did not. We worked very hard to interest physicians in those days, because it was necessary to make a resort then a resort for sick people, although we had barred tuberculosis. It was not very successful, and I remember my father's saying to me a great many times that the only way in which this place could be made successful was on the basis of outdoor sports. It is

hard again for us to look back and see how outdoor sports were regarded in those days. The place went pretty slowly. I have just been looking over some of the old circulars which we sent out to physicians and people all over the country.

The other scheme father had in mind was to establish peach orchards around here. About that time the San Jose scale struck this section and the peach orchards were abandoned.

Well, we went on working on the basis of outdoor sports for men and women, and gradually the physicians began to appreciate the value of that to their patients. For instance, an old gentleman came to me this last year and said that he had begun as office boy in the large concern of which he is now the president, and that he had never taken a day's vacation before. His physician told him that it was absolutely essential for him to get away and told him to go to Pinehurst. He replied that that was the last place to which he wanted to go, for they did not do anything but play golf. The doctor said that it was the very place for him, for he would be forced into it. Well, it was successful; his life was prolonged many years; and that same case is multiplied many times.

During the last few years the peaches have come into this section and there is tremendous enthusiasm about the peach orchards, and if you listen to any of the people around here you will hear nothing but peaches. They have been a good many years in coming, but now Pinehurst is surrounded by peach orchards.

Pinehurst has evidently been recognized by the people of the United States, and the pleasantest thing of all is that it is evidently recognized by the physicians of North Carolina. We certainly appreciate it, and we hope that they may come here many, many times more.

Dr. McBrayer:

The Moore County Medical Society presents to you its President, a versatile writer and an eloquent talker, who will speak to you a word of welcome on behalf of the Moore County Medical Society. I present Dr. M. E. Street.

ADDRESS OF WELCOME ON BEHALF OF THE MOORE COUNTY MEDICAL SOCIETY

Dr. M. Eugene Street, President

It is a great pleasure to see and to welcome to this meeting in Moore County so many faces that we have been meeting in the State Society Meetings for twenty years. We know your great worth, and we know the results of your labors, and to you, the Moore County Medical

Society extends its greetings. And to the younger men who are filling in the vacancies caused by the veterans passing to their rewards, the Moore County Society extends its greetings.

At no previous meeting have we been so honored by the attendance of so many of the wives and daughters of the State Doctors, and in extending to these ladies our heartiest greetings, we wish to express the great satisfaction and delight that it is to have them with us, and to voice the hopes that they may grace our future meetings by their presence, and in even greater numbers.

The man who works so many hours as the doctor does, is usually a tired man, and overworked husbands are not always angels in male attire, even if they are doctors, and it is perhaps more than a suspicion that a few days off is a mighty good thing for the doctors' wives.

All the ailing poets were too much concerned about their own ills, and all the healthy ones have had too little intimate knowledge of the doctor's family life, to give to the world a picture of the doctor's wife. So all the great things have not yet been accomplished, and some day a real poet will give to the world a true portrait of this great heroine.

In all great meetings of physicians, there are questions for decision, and if the medical profession is to maintain its prestige and world leadership, and the confidence of mankind, it must steer safely between the rocks of socialism and the whirlpool of commercialism.

Already there is too much suspicion of the medical profession on the one hand that is not entirely unjustified. And this suspicion is keeping too many of that class of young men upon which depends the position of honor that it has always enjoyed, from entering the medical profession. This suspicion has been brought about by self-seeking politicians on the one hand, who would lower the greatest of professions to a socialistic arena where there would be only an unseemly scramble for place, by an army composed of degenerates and the unfit, to the great loss of both the medical profession and the laity; and on the other hand, is that danger of the loss of public confidence on account of the trend toward commercialism so insidiously inaugurated by the Jew, and which is creeping into practice under specialism and group medicine. And in dealing with these things, it is necessary to bear in mind that it is a question of principles with which we have to deal, and the discussions should not befog the issue by a descent to personalities.

The ideals of medicine must be upheld at any and all costs. And if the medical profession is to hold the confidence and respect of the world, it must still contend for, and maintain, as its greatest ideal, the greatest possible efficiency in the service of humanity.

Differences of opinion will arise as to the way in which this may best be accomplished, and all honest opinions are entitled to a respectful hearing. And upon the soundness of the judgment of the body of the profession, will depend the advancement or the retrogression of the prestige of the profession. Therefore, these momentous questions should be calmly and dispassionately considered, and no hasty or half-baked conclusions adopted.

It is confidently believed that the men who so often are called upon to decide what means life or death, and who know how to appreciate the new means for saving life, which medical science is continually providing them with, are fully competent, and better qualified to render decisions than are those whose work does not bring them face to face in single combat with death, and that the decisions so rendered will not detract any intelligence or honor from the profession; and that their decisions will serve to remove the barrier that is now causing a serious shortage of young men of the best type, in the study of medical science.

And the Moore County Medical Society gives to you, one and all, the very heartiest welcome to this Pinehurst, Moore County Meeting, with the one hope and the one desire that you may all get the greatest enjoyment out of this meeting, and that for the whole year from now until the next meeting, the impression may still be vivid upon you, that at the Pinehurst meeting, you were *welcome!*

Dr. McBrayer:

This section not only produces peaches and noted physicians like the President of our County Society, who has just spoken to you, but it also produces great lawyers, and we are going to have a word of welcome from one of these. I present the Honorable U. L. Spence, of Carthage.

ADDRESS OF WELCOME

Mr. U. L. Spence:

Members of the Medical Profession of North Carolina, Ladies and Gentlemen:

Even if I might do so, or if I could do so, I would not trespass upon your time with a speech. When the medical profession of North Carolina have been invited to Pinehurst by Mr. Leonard Tufts no other welcome from any other class, either in Moore County or in North Carolina, is necessary. His welcome means in this community a community fete day. His hospitality is the culmination and essence

of courtesies, cunningly contrived for your complete comfort and happiness, as I am sure you will realize—every one of you. He recognizes that this community is a good place in which to meet and a good place in which to live. It took some years, but he has not been able to resist the siren call of this country, and I ought to announce and I am happy to announce this morning that he is now a full-fledged citizen of Moore County, North Carolina. (Applause).

It is not necessary that a spokesman or an orator be chosen to convince you that you are welcome to this community. Moore County has the habit of extending invitations to all good people. For more than a generation our arms have been extended in invitation to the best people of the world to come and live among us. Happily, we have gotten with us only the best people of the world, making it the best community in the world. Moore County was among the first to invite the New England Yankees, even immediately after our unpleasantness a few years ago. We have found that we have profited thereby. Here it is a paradoxical truth that Scotch thought and Scotch action are influenced by New England thrift, and high finance even, submits itself to Presbyterian honesty in the development of this great country. Moore County is the most cosmopolitan county in the world. Still she is the land of the long leaf pine, the land of the vine and the fig tree, the land of the pickaninny and the peach, the land of sunshine—yea, indeed, the land of moonshine. (Applause).

We welcome you into our homes, to our fields, to our woods, to every possible place to which you may have an inclination to go. The latchstring hangs out, and invitations hang out everywhere. It is a great pleasure to extend this invitation to the medical profession of North Carolina, and I am sure that I speak the sentiments of every citizen of Moore County.

Dr. McBrayer:

The gentleman who will respond to these addresses of welcome, although you might not think so to look at him, is a physician, and a scientist of national reputation. Dr. W. J. Mayo attended a Session of this Society when we met at Durham a few years ago. My good friend Dr. Long would call him Will Mayo. Dr. Fletcher was the President of this Society at that time, and when the opening exercises were over he whispered into Will Mayo's ear, "Some of these papers will probably be tiresome to you, and I don't want you to feel under obligations to stay here and listen to them unless you want to." He answered, "Well, I see that Bill MacNider's name is on the program, and I want to hear him." There is no scientific organization

and no group of scientific men in the United States or in Europe but will anxiously and pleasurably listen to our Bill MacNider. He is an honor to the medical profession in North Carolina and the United States and the World, and he is an honor to North Carolina. I present Dr. MacNider.

RESPONSE TO ADDRESSES OF WELCOME

DR. WM. DEB. MACNIDER, CHAPEL HILL:

Words are fine things; they are beautiful things. There is one thing, though, that is better than a word, and that is an action. We came here first in 1918, and our reception was so cordial and we had such a good time that we came back in 1919. Then, perhaps for fear of marring our welcome, and with a desire to see a real city, we accepted an invitation to go to Charlotte, and we had a lovely time. It was a boisterous time, though not so boisterous as it once was. (Applause). The time was full of dinners, and study and friendship. But you know, doctors are natural things. They deal with nature; they deal with God, and perhaps they are part of God. So we turn again this year to this natural spot for our studies and deliberations. We believe every word that you gentlemen have said in your generous welcome. We know that we shall have a good time and a profitable time, and before long we shall come back. And, if I may say so, Mr. Tufts, we shall come back home.

DR. MCBRAYER:

We are conducting this morning's service on a progressive ratio—it gets better all the time. And that does not mean that it was not of the best at the beginning. So it is a great pleasure to present to you now your President, Dr. Thomas E. Anderson, who will deliver his annual address.

(The Society paid Dr. Anderson the distinct compliment of rising to their feet when he was introduced, to which he replied:)

DR. ANDERSON:

I am more honored, gentlemen, by this expression than I can find words to convey.

Mr. Dickens says in one of his books, speaking of one of his characters, that "At that juncture he seemed oppressed by a sense of his own importance." Gentlemen, I have the oppression, all right, but it does not come from that source.

One of the very greatest members and minds of this Society, and a towering man, delivered an admonition to me that I want to carry out, about my performance here today. He warned me not to consume more than two hours and thirty minutes in the delivery of my address. He said, "I committed that error when I was president of this Society, and the memory robs me of pleasure now." There are a number of gentlemen in this Society who are of sporting proclivities, I am sure, and perhaps some one of you may be the possessor of a stop watch. So when I have consumed two hours and thirty minutes I shall thank that gentleman to call upon me to stop. I do not want to commit that indiscretion.

ADDRESS OF THE PRESIDENT

Members of the Medical Society of the State of North Carolina, Gentlemen:

Selected at Charlotte one year ago for this high place, out of the abundance of material at hand, I have been trying all the year to convince myself that I possessed at least some of the elements necessary for the performance of the high duties and obligations inhering. The jury in this case has not yet reached a verdict and a mistrial will, I fear, be the outcome. I do not know how the eminent, scholarly committee entrusted with this duty arrived at their conclusion. Somehow, I am led to believe that my selection was not the outgrowth of subtle mental processes, but by the less taxing and more material means of drawing straws or a toss up of coin. However it may have been, it has not lightened the responsibility and burden involved, and implied, in being the President of this Great Body.

First: I must so demean myself as to not bring discredit and confusion upon the committee which made this choice, and then that other imponderable, Atlastian, load of maintaining the dignity and high standing which has been imparted to this office by my predecessors. Again it is our pleasure to meet in this enchanted land, this home of the mocking bird, where earliest falls the dew, and where the richest sunbeams are distilled. North Carolina will never forget the man who with prophetic vision correlated the waste forces Nature had so prodigally provided here, and made this place blossom as the rose, or, in the language of the Psalmist, "Passing through the valley of Baca made it a well."

Our ears have been greeted here today by warm words of welcome and felicitous oratory, and now, following the custom, I know they that led me away captive are going to demand of me a song. With

my limitations, I shall be satisfied if I attain even a middle flight in responding to this demand. The period of incubation between our meetings affords ample time for this preparation, but it can never impart that lyrical sense which crystallizes thought into rhythmic utterance, or fill the mind with scientific deductions that has fed on simply the milk of the word, or been content to merely gaze on the externals. To meet this demand I have spent much time looking back over the addresses of my illustrious predecessors. In fact, you might say I have communed and lived with them. Strange to say, with no fault of theirs, this quest has yielded no better results than to utterly discredit those lines of the poet, which say "Lives of great men all remind us, we can make our lives sublime." The uplift still delays its coming.

Two years ago, there was delivered from this very platform a presidential address which lifted the standard to such heights as to become a veritable stumbling block and rock of offense to all future aspirants in this line, and so as this time and day demand a lowering in prices and rates, I am going to so lower the standard of presidential addresses that a way-faring man, though a doctor, may indulge in such diversions with some hope of meeting the demands required.

Fortunately, due to the activities and fine talent of our Secretary, Dr. L. B. McBrayer, the program, largely due to his efforts, gives promise that we shall not want for entertainment at this time. It is recorded in the Holy Evangels, at one place, that "The Church had rest." The thought has come to me, Would it not be a good thing for our Society to have a break in the procession of our annual addresses and take a rest? Certainly, gentlemen, equipped as I am, I shall not tax your minds on this occasion with a heavy scientific display, for in a large measure these annual meetings are recreational, anyhow, and, further, I am not so sure but that true courtesy would demand that the scientific emanations of this body are solely prerogatives of the membership itself. My remarks will illustrate a deliverance from Lord Bacon, who said that "It is the nature of the mind of man, to the extreme prejudice of knowledge, to delight in the spacious liberty of generalities." There has been little change since his day in this respect.

There is one thing, gentlemen, which in the span of my life, and connection with this Society, I have seen expand from a cloud the size of a man's hand until it has covered the nooks and corners of our State, and that is the growth of the cordial relations existing today, among the medical men of our State as a body. Factions and discordant elements prevailed on all sides; lo here and lo there, was much

in evidence; but, thanks be to that resolute minority, which held true to the helm, our ship is now sailing in serene waters, and the motto which animated Cæsar's soldiers, "in uno animo," will be more and more our motto, and we shall more and more adhere to Kipling's words, which say:

> "Now this is the law of the jungle,
> As old and as true as the sky;
> And the wolf that shall keep it may prosper:
> But the wolf that shall break it must die,
> As the creeper that girdles the tree trunk,
> The law runneth forward and back,
> For the strength of the pack is the wolf,
> And the strength of the wolf is the pack."

I believe it was Lincoln who said: "We must all hold together, lest we hang separately, not bound together by the cohesive power of public plunder, but by that altruistic spirit which holds fast to everything that is of good report."

The horizon looms large with vital subjects pressing for expression and adoption to the discriminating heralder. Perhaps nothing is more in the fore at this time than the movement for the standardizing of Hospitals. Dr. Lewellys F. Barker, of Johns Hopkins, has lately contributed to the medical press a most illuminating paper on this subject. He says: "Thanks to the ever increasing studies in the sciences of physics, chemistry, biology, psychology, etc., and the adoption of the principles of these sciences, the pure science of medicine has been built up into a great structure." In the hospital work of the future every one of these sciences will be brought into requisition, group diagnosis and group therapy will be the goal aimed at by all. Every hospital, by this advance, will have in its staff heads of all these divisions; skilful scientists will analyze the conditions existent in particular domains, circulatory, respiratory, digestive, urogenital, metabolic and endocrine. The group acting as a unit will do what a single general practitioner could do if he possessed all the knowledge, and all of the skill, of all the group components. But it is not given to one intelligence to cover so much ground. He says, "The bigger a man is now-a-days, the less he attempts a splendid isolation." Clearly then, he further says, "Group medicine is a logical development, the inevitable resultant of the growth of science." This great subject could be amplified in all directions, but I am going to leave to my successor to further enlarge on it, and shall not embarrass him by my mantle.

Another great subject which is illumining the eastern sky is so well brought out by that far-seeing and wise counselor, Dr. Fredrick R. Green, Secretary of the Council of Health and Public Instruction, that I am going to make bodily use of some of his words and ideas. Up to the middle of the last century both medical knowledge and medical practice were largely, if not entirely, individual. No one consulted a doctor until afflicted with some specific disorder. The only interest the physician had in the patient was a personal and individual one. Little was known regarding the source or cause of the disease, the method of its transmission, or the means of its prevention. If a physician were called to see a patient suffering from typhoid fever, he treated the patient until he recovered or died, in the main, allowing those associated to take their chances at infection, for there was no way of knowing how the patient had acquired the disease or of preventing others from acquiring it. Let the outcome be what it may, the physician went down to his house justified, provided he had been attentive and used all the usual means.

Today quite a different situation exists: Modern medicine has a social value as great or greater than its individual side. Thanks to the development of the natural sciences during the nineteenth century, our knowledge has advanced more rapidly in the last fifty years than in the preceding eighteen hundred years of the Christian era. Two factors are responsible for this unprecedented progress. The first is the development since 1750 of modern chemistry, which resulted in the foundation of our present knowledge of physiological chemistry.

Second in importance, right along in line with this movement to standardize colleges, comes its congener, the movement inaugurated by the surgeons of our country to standardize both surgeons and surgery—the establishment of the American College of Surgeons. The North Carolina section of this order held a most notable meeting in January of this year at Charlotte, presided over most graciously by our Governor, who in chosen terms welcomed the distinguished guests present. Some of the most noted surgeons of our country honored the meeting by their attendance. The meeting was cast on a high order and marked by deliverances, which, if adopted, will lift surgery to its proper heights. The fellowship pledge, required of all of its fellows, gives promise of most noble service, containing the following sentiments: "I pledge myself to pursue the practice of surgery with thorough self-restraint and to place the welfare of my patients above all else; seek the counsel of my professional brothers when in doubt, to shun unwarranted publicity and commercialism."

Fellowship in the order is a guarantee of high attainments and integrity. Next was the developments which took place in physics. Owing to the limitations of the human eye, the living causes of contagious diseases had always been invisible and therefore undemonstrable. Crude magnifying lenses were first devised in 1836, eighty-four years ago. Lister and Amici made the microscope an instrument of precision, and opened up the invisible world to scientific students; Virchow, the father of modern pathology, began his great work in cellular pathology, which marks the beginning of our scientific knowledge of disease.

Pasteur in France, working in this field through microscopy by the study of crystallography, tartaric acid and fermentation, laid the foundation for bacteriology and was able to say for the first time in human history, "It is possible for civilized man to cause all contagious disease to disappear from the earth." From that moment, and that announcement, contagious diseases ceased to have a primary individual importance, and became a social rather than an individual problem; and so the study of the causes and prevention of disease became a possibility and thousands of men took up the study of one disease after another in lines too well known to need recounting. So rapid has been the growth of scientific knowledge that it has been difficult for our leading medical schools to keep pace with it, and our medical graduates are still trained almost exclusively for the treatment of individual patients.

What is true of our medical colleges is also true of our medical societies. Papers on public health questions are read to a handful of listeners while the majority flock to some surgical amphitheater to see a surgeon operate on a case of gall bladder. It is absolutely essential that physicians recognize the fact that the treatment of diseases of the community is just as much a function of the medical profession as are diseases of the individual. Mark Twain said that "Any library was a good one which did not contain a copy of the Vicar of Wakefield in it." What could be said of a medical address on the general field of medicine that did not mention the wonderful achievements wrought in the domain of preventive medicine in the last 30 or 40 years! Here it may be said reverently that "Day unto day hath uttered speech and night unto night shown knowledge."

The first outstanding figure in this line was Sir William Jenner, in 1798, who with rare discernment rescued the race from death by smallpox. Lister and Pasteur came next, at a much later date. But to Robert Koch, more than to any other man, are we indebted for the fundamental knowledge of the pathology of infectious diseases, whose

labors and discoveries I will not elaborate upon. It would try your patience as well as be a reflection upon your intelligence to recount the galaxy of names in this field. Neissar, who discovered the germ of gonorrhoea; Laveran of malaria; Ebert of typhoid fever; Klebs of diptheria; Kitasato of tetamus; the list swells into almost an army.

On the heels of these discoveries came the development of protective inoculation and vaccine therapy. Where can you find higher proof that man was made in the image of God, or a better earnest that he may yet attain to that height ascribed by the Psalmist to the birds of the air, when he cried out: "Yea, the sparrow hath found a house and the swallow a nest for herself; even Thine altars, Oh, Lord of Hosts."

This is a good place to stop, but I feel the occasion would be lost were I to pass over in silence the great work which has been done by The North Carolina State Board of Health in the last few years under the guiding hand and vision of the Secretary of that Board, who has brought such renown to his State. Since his incumbency, his "far flung battle line" includes advances of momentous import to his own State and the States of this union. To recount them would make this article reach the proportions of a library.

I will, however, ask your indulgence for a few citations, and among the great accomplishments under his prompting, I will mention a few of the more prominent. First: His rehabilitation of the State Hospital for Tuberculosis in 1914, (then Montrose) now Sanatorium. This institution, after weathering many storms, was in a condition of near demise, was in fact moribund. Have you ever seen that wide expanse of most unusual topography of 1300 acres, secured by rare wisdom at a nominal price by the State? If not you have that opportunity now, as we are just on its borders. The location, which was ideal, was about all there was to base hope on. It required a man of strong faith and stronger nerve to come to the rescue. This Dr. Rankin did, and the triumphant report today of the able management of this institution shows how order was brought out of chaos and a great door of service opened up to our people.

The next great service to his State was the placing of North Carolina in the registration area for deaths and births, the former in the year 1916, the latter 1917. Here confusion and chaos had reigned supreme through all the ages. Our records were valueless. This was a monumental work; there was virtually no line of least resistance to follow. Our doctors, inured to the old customs, were slow to give in their adherance, standing in open defiance to it in many cases. Happily a new day has dawned, when all recognize the importance and wisdom

of the measure and it now finds ready acquiescence. Our vital statistics are now trustworthy and a matter of State pride and are quoted far and near. It is my pleasure to tell you that North Carolina now leads the entire United States, with the highest birth rate in the Union, according to statistics for 1920, and the same statistics show our death rate to be the lowest. During 1920, every six minutes a new life was born into the world; every fifteen minutes another life was snapped off. The births being so far in excess of the deaths of the State during the last decade, for the State has had little increase by reason of immigration, gives us a very healthy increase in population. In this category of service is included also, the making and free distribution of typhoid vaccine, diphtheria antitoxin, anti-rabic virus, free Wassermanns, etc.—so well known to all of you.

I hope all of you scanned carefully the December Bulletin of last year. Here is sumed up much that has been done. Innovations are never viewed hospitably at first, and some of our doctors were slow to fall in line, but now I believe there remain but few to cast a lingering glance behind and yearn for the flesh pots of Egypt. There may be, here and there, some who made and sold silver shrines to the temple of Diana that demur, but for every one of these there will rise up a thousand lowly obscure homes, from which will come grateful praise for the banishment from such homes of physical defects and blighting forces. It is but fair, to say to you, that while the Secretary was exhibiting these activities, the Board had a President who was strictly on his job.

Traveler, what of the night? Hear the answer: The day is breaking, and the time is near at hand when all the hybrid organizations who are holding out false hopes to man will fold their tents after the manner of the wily Arabs and as silently steal away.

In this connection, I feel I should not omit to call your attention to the splendid work done before the last Legislature by the Committee that was appointed at the Conference held in Raleigh in November in conjunction with the State Committee on Public Policy and Legislation of our Society. These working together, with untiring efforts and devotion, successfully checkmated some evil designs on the laws governing the practicing of medicine in our State. Several helpful amendments were secured to the laws governing the State Board of Medical Examiners, the practise of medicine clearly defined, etc. For these valuable acquisitions, too much praise cannot be given to Dr. A. A. Kent and Dr. K. P. B. Bonner, respectively, President and Secretary of the said Committee.

This medley, with or without your indulgence, must include a short survey of the times and the customs which exist today. Premillenium

signs are in evidence on all sides. First, our Government, so long steered by the hands of men, has reached the hour when that burden must be shared by the hands and minds of women henceforth. This is a most radical change, and the future must prove the wisdom of it. This is a case where the power behind the throne has become the power upon the throne. Will she any the less, when she comes into the full realization that suffrage has put into her hands, cease to be the queen and guiding spirit of the homes of the land? "Lord God of Hosts, be with us yet, be with us yet." Kipling says, "The female of the species is more deadly than the male." This is submitted without argument. However, I believe I can unhesitatingly assert that the history and events of all times and of all countries have proven that wherever her will, influence and presence have been invoked, there has come uplift and a better day.

We are standing on the verge of another day almost as momentous, a day which shall determine whether we can live on the earth without the beneficent and otherwise effects of alcoholic beverages. In 1914, at our annual meeting in Raleigh, one of our most gifted men, who adorned the chair of President of the body, at that meeting boldly took the ground that as a medicine in any and all forms, alcohol was a negligible quantity and the amount required by the entire State, if needed at all, as given by him, relegated him at once to the ranks of that body known as homeopathists. Prompted by men of like convictions, after years of defeat and waiting, finally the conscience of this great country became so awakened by the alarming encroachments of the great octopus Alcohol, which was fastening its tentacles deep in our body politic, that an appeal was taken from Philip drunk to Philip sober, and then came out from our Congressional halls the enactment of the Volstead law and destroyed this curse which was threatening to destroy our people. It will require only a generation or two to show a people of finer fibre of mind, body and soul, with a lowered nerve tension and better moral poise.

Ere I close this rapt discourse, I want to bring to your perspective the picture of what I have always conceived to be the highest, or certainly next to the highest, of man's exploits here below: I allude to the true heart-and-head-enlisted, old-time and new-time family doctor, who, in season and out of season, has spent his life or is spending his life in the homes and by the bedside of those ordained to suffer. Our surgeons have wrought with marvelous skill and made the name of American surgery the envy of the world. But, I am inclined to the belief that too many of our young men are unduly led away by the glamour attached to the achievements of the knife, and view the daily

routine of the practice of medicine as dull and of secondary importance, unmindful of the fact that the greatest study ever presented to the real student of medicine is pathology, the knowledge of disease, coupled with physiology, the knowledge of the processes of the body in health, the correct interpretation of the so-called symptoms, in evidence when this harmony is disturbed by disease, and the study of the physiological actions of drugs, thus affording an armamentarium to combat the inroads of disease. Upon this tripod hang all the laws and the prophets which should govern a medical man. Surgeons have glorified American medicine and we shall ever have them with us. But the world will ever cherish the picture and glorify and magnify medicine as illustrated by men of the type of William McClure, daring the elements and carrying relief to the suffering by day and by night, to the hovel as readily as to the palace, preferably on horseback with well-worn saddle bags—a picture which should never fade from human memory and will incarnate both the horse and the rider forever.

With no hope of enlightening you, may I have the consciousness, in even a small measure, of having entertained you. Of one thing, however, I am certain, and that is that I have, by these presents, lowered the standards of presidential addresses sufficiently for all future time. It has been my aim not to seem merely clever, for one has said that "Cleverness, anyhow, is only the level of mediocrity today."

Gentlemen, in other matters easily drifting into words, when it comes to making due acknowledgment for the high honor I enjoy today—that of being your President—I can only employ the simple unaffected language of my heart and say, I thank you most cordially and profoundly. I shall ever cherish this, the supreme achievement of my life.

Dr. John Wesley Long, Greensboro:

I hope, sir, that it is not inappropriate for a low private in the rear ranks to make a comment upon this admirable address of our distinguished President. I am sure that my friend, Dr. Anderson, who has a great fondness for the fair sex, will pardon me if I compare his address with something which I heard a lady say recently. While the Legislative Committee from this body was in Raleigh fighting the osteopaths and chiropractors, I was sent for to go to Raleigh to hold the Committee's cloak while they did the fighting. It happened that at that particular time Mrs. George W. Vanderbilt had been invited to address the Legislature upon the subject of the State Fair. Both

Houses adjourned and met as a single body to hear her. I am sure that every man and woman here will agree with me when I say that President Anderson's address may be aptly compared to the opening remark of that gracious lady on that occasion. She said, "Gentlemen, I assure you that I shall not detain you very long, because I have been told that an address should be like a lady's skirt, long enough to cover the subject, yet short enough to be attractive."

Dr. J. Howell Way, Waynesville:

Speaking for myself, for those around me, for everyone, I am sure, in this large hall, I can only cordially endorse the encomiums paid this splendid discourse by our mutual friend, Dr. Long. I desire, sir, to move that the thanks of this Society be tendered to Dr. Anderson for his beautiful address, and that it be referred to a committee to report at a later date.

This motion was seconded and carried, and a Committee on the President's Address was named by Dr. McBrayer, as follows: Dr. J. Howell Way, Dr. Charles O'H. Laughinghouse, and Dr. H. A. Royster.

Dr. Anderson:

I had hoped that the character of my address would do away with that necessity, but I thank you very much.

Dr. McBrayer will now make some announcements.

ANNOUNCEMENTS

Dr. McBrayer:

I want to ask all members of the Society and the ladies, who are certainly auxiliaries, to use their programs. The Committee on Arrangements has endeavored to put everything in the program except the entertainment for the ladies, which will be put on a separate sheet. The place of meeting of each section has been put in the program, and the time of meeting.

The Ladies' Entertainment Committee will take charge of the ladies, and will meet them out in the lobby as soon as adjournment is had for the section meetings. The ladies are grand and fair and good, always and everywhere, but I am sure that both ladies and men will find the ladies of this section for the time being, at least, grander and fairer and sweeter than those of any other section.

The meeting of the House of Delegates will take place, according to law, at two-thirty this afternoon, and will be held at Holly Inn.

I want to ask that the secretaries of all county societies meet promptly, according to the program, at six o'clock Wednesday afternoon in the parlor.

Those of you who have not registered will please do so, both men and women, in the foyer of the hotel, near the front door.

The management of Samarcand Manor requests me to ask that all who desire to take lunch at Samarcand Manor on Thursday register at the desk for this particular trip. I think that I can promise an inspiration for all who go.

Dr. Cyrus Thompson, Jacksonville:

Two years ago, when I was here, I ran hastily out to Samarcand Manor. I had only a few minutes to stay, and did not have enough time to find out whether or not the institution was doing anything. But yesterday I went out and spent the afternoon there, and it is well worth while.

Dr. C. B. McNairy, Kinston:

I think it will impress the fact, my friends, of how negligent we have been in the care of God's poorest unfortunates.

Dr. McBrayer:

This afternoon at two o'clock the great city of Charlotte will advertise herself and entertain us by some of her citizens, enterprising business people, giving us a thrill in the way of æroplane dives and stunts. While we are enjoying ourselves looking at that, the photographer will make a handsome likeness of us all.

The other entertainments are all mentioned in the program, and you can read about them for yourselves. There is one thing, however, to which I should call particular attention. I understand that Dr. Faison has been converted to the races. Mr. Tufts has arranged a chariot race as one of the features of the racing tomorrow afternoon, and has secured, as jockeys for this chariot race, Ed Wood, Gene Glenn, and Isaac Faison.

I am glad to announce that we have today, in round numbers, thirteen hundred paid-up members in this Society. That is a larger number of members than the Society has ever had up to two years ago. The brethren are getting better about this matter. It used to

be that they did not pay their dues until they came to the annual meeting, and sometimes then they forgot it. But there are still a few counties which have not paid their dues. There are also a few members, in some counties which have made their report, that have not paid their dues. If any of you should be inspired to pay up while here, you can see Mr. Snow at the registration desk.

The Society will now resolve itself into section meetings, and the North Carolina Hospital Association, with Dr. J. M. Parrott as President, will convene in the parlor. (Adjourned).

SCIENTIFIC PAPERS

SECTION ON PUBLIC HEALTH AND EDUCATION

SECTION ON PEDIATRICS

SECTION ON EYE, EAR, NOSE AND THROAT

SECTION ON PRACTICE OF MEDICINE

SECTION ON SURGERY

SECTION ON GYNECOLOGY AND OBSTETRICS

SECTION ON CHEMISTRY, MATERIA MEDICA AND THERAPEUTICS

PUBLIC HEALTH AND EDUCATION

Dr. C. P. Mangum, Kinston, Chairman

SANITATION OF THE RURAL HOME

By H. L. Cooke, M. D., Fayetteville

The health of the country home depends in a large measure upon its surroundings. It is a popular opinion that life in the rural districts is more healthful than in the towns and cities. This would probably be true if the rural homes were governed by adequate sanitary laws, as is the case in most of the cities; however, as a general rule, the rural dweller is inexperienced and ignorant of the cause and transmission of diseases and this disastrous condition is merely due to lack of education. It is believed that the results of educating those people along sanitary lines would increase the sanitary status to a great degree, and stamp out a large percentage of diseases.

About one-half of the population of the United States are rural dwellers. Very few have sanitary means of sewage disposal, and often no privy of any kind is used. Usually the water supply is inadequate and does not meet the requirements of sanitation. Protection from insects is nearly always overlooked, and to a great extent the entire home is detrimental to health. The health of the people in the rural districts affects the health of the people in the towns and cities through association.

HOUSING

The importance of house construction for the human being, in regard to hygiene and sanitation, is not sufficiently appreciated by the public. It is true that a great deal more importance is given to the building of dwelling houses in the towns and cities than in the rural districts; however, this should not be, as probably more than one-half of the population of the United States live in the rural section. As a general thing the rural home is constructed with no regard to site, ventilation, exposure character of soil, material, interior arrangement or drainage.

The building site should be so located, as far as possible, as to give protection against violent winds and storms; but with free circulation around the house. The dwelling house should be, not under 75 yards from the barn yard, cemetery, any marshes and preferably upon some elevated site. The material used in the home is a matter of the individual choice.

A proper system of ventilation must take into consideration the cubic space of the building to be ventilated, the number of persons occupying that space, certain other collateral elements, such as exposure, the necessity for artificial heating and lighting of the house, and the season of the year. In sleeping rooms the initial air space should never be less than thirty-five (35) cubic meters for an adult, (Roho & Robins) and twenty-five (25) cubic meters for a child under ten years of age. In practically all instances, natural ventilation should and does obtain in rural homes.

The method of heating for the average rural home needs must be practical, comfortable and inexpensive. In most homes, stoves and fire-places are found in use; the fuel usually used is wood, coal, or gas. When gas is used precaution should be taken against leakage from fixtures and incomplete combustion of the gas. Stoves should be properly jacketed. When fire-places are used precaution against draughts should be taken.

PROTECTION FROM INSECTS

Insects are responsible for many preventable diseases. The insect which most commonly transmit diseases are mosquitoes and the common house fly. It is an established fact that the house fly breeds mostly in stable manure; but, also to some extent in human excreta. It is almost always found within a short distance of its breeding place.

The diseases of mankind which may be transmitted by the human excreta, are, typhoid fever, para-typhoid fever, the different types of gastro-intestinal diseases and tuberculosis. Of these, typhoid fever is responsible for approximately 40,000 deaths in the United States, with 400,000 cases annually. It was proven during the Spanish American war that with an increase in the number of flies there was a corresponding increase in the number of typhoid fever cases.

Without adequate screening of the homes the house fly will be free to feed alternately from excreta, putrefying animal and decaying vegetable matter, as well as from the dining table and kitchen, bringing filth upon their legs, within and on their bodies from these various places and depositing upon the food; contaminating it with organisms found in these various places.

It has long been known that mosquitoes are carriers of diseases. Of these diseases I will only mention those that are most commonly seen in the United States and can be prevented. There is a certain type of mosquito that carries the organism of malaria fever, which is by far the most common disease in the Southern part of the United

States; another species of mosquito carries the organism of yellow fever which is seen mostly in the tropical regions.

As a measure to prevent these mosquito borne diseases, we must rid ourselves of the mosquito, destroy the organism of the disease in man as far as possible and protect ourselves by screens. All low places should be filled or drained, standing water should be drained, or the surface water covered with kerosene oil once a week. All tall weeds and underbrush should be cut down. Cans and other receptacles that contain water should be disposed of, unless used for some special purpose and these should be securely covered. Persons suffering from any mosquito-borne disease should not be exposed to mosquitoes; this end can only be obtained by proper screening of the home.

In screening a house, care should be taken in the selection of the screen. The frame should be heavy enough not to warp and of lasting material. The size of the mesh should be small enough to exclude the smallest disease bearing mosquito; but large enough to permit free circulation of air. The screen should fit tightly both the doors and windows.

Mosquito nets should be used in mosquito infested regions, but screening is more important. Nets are easily blown aside by the wind giving free access to the mosquito.

MILK

Clean milk is absolutely essential to health. The degree of cleanliness of milk is controlled by the cleanliness of the dairy and its surroundings, and the cleanliness of the milker; also, much depends upon the dairy herd.

The diseases commonly spread through milk are tuberculosis, typhoid fever, diptheria, sore throats and summer diarrhea.

Very few milch cows, especially those owned by the rural dweller, are subjected to the tuberculin test. It is now believed by many medical men that a vast amount of human tuberculosis is contracted in infancy by drinking the milk from tuberculosis cows.

Typhoid fever is often transmitted by means of milk. The milker may be a carrier. Often the house fly has free access to the privy and milk supply, in this way, the milk becomes contaminated with the bacillus typhosus, if the organism happens to be in the privy contents. Many other organisms may be deposited in the milk supply, from this same source, which cause the fatal diseases in infancy, i. e., iliocolitis, or summer complaint. This disease alone causes forty per cent of mortality among infants under one year of age. Inflamma-

tory diseases of the udder are responsible for numerous cases of sore throat.

Milk forms an excellent medium for the growth of germs, therefore the best way to obtain clean milk is by proper care of the dairy herd, such as cleanliness of the barn and surroundings, clean milk cans and screening the dairy from flies. The milker must be of clean habits and free from infectious diseases. Cows should undergo the tuberculin test, and those that react should be discarded. A clean well lighted and ventilated barn is necessary.

In warm weather the milk should be placed immediately after milking in a refrigerator, or in a well stopped and covered container and placed in a cool stream of water, which is protected against contamination.

WATER SUPPLY

It is a well known fact that water transmits many of the germ diseases such as typhoid fever and gastro-intestinal complaints.

The sources of water are classed as surface, shallow and deep underground supplies. The surface supplies are obtained from ponds, streams, reservoirs and cisterns. The shallow and deep underground supplies are from springs and wells.

Water obtained from surface supplies are usually polluted and should not be used for drinking purposes, unless protected from contamination and purified before using.

The underground supply is generally classed as deep and shallow. Wells under 30 feet in depth are considered shallow supplies. Very little thought is given, in a large per cent of cases, to the location of the well. On some farm homes they are located near the privy, while others are in the barn yard or stock pen, where the location invites pollution.

The sinking of a well, as regards to safety from pollution, depends upon the location, the method and the type of the sinking, the character of the soil, the surface protection and the direction of drainage.

The wells generally found at the farm houses are dug with very little protection from surface pollution and are usually of the shallow arrangement. This kind of well is usually polluted, especially when it is located near the privy or barn yard. When the water supply is near a possible source of pollution a great deal of care should be taken in the curbing and easing of the well. If this is made water tight the surface water will have to sink through the different strata whether sandy or clay soil, and is thus filtered and most of the constituents of pollution removed.

Springs usually receive their supply from the deeper strata, and are not polluted except at their out cropping; therefore, if care is taken to prevent pollution at the surface, spring water is usually safe for human consumption. The spring should be well drained, cased in and covered.

By far the best water supply that can be obtained for rural homes is a deep water supply, driven or bored well, with close fitting, water tight, tile or iron casing, well protected at the surface by concrete platform, and located a safe distance, (at least 200 feet) from the privy and barnyard. It should be equipped with one of the modern pumps.

SEWAGE DISPOSAL

Directly and indirectly, excreta of human beings are responsible for almost all preventable diseases; therefore, it is the demand of sanitary science that proper care should be taken in the construction and operation of sanitary sewage disposal systems. The system to be used depends to a large extent on the financial status of the home. For this reason the system to be recommended should conform to the financial status of each individual home; and at the same time answer the requirements of sanitary science. These requirements should be inexpensive, convenient, fly proof, well ventilated, water tight and easily operated.

The woods, stalls, barns and open-in-back surface privy and usually the pit privy as sewage disposal systems are a menace to human life, and where these systems are found, there are always found typhoid fever and the different gastro-intestinal diseases.

The vault privy, unless well constructed is as dangerous as a surface privy and will perhaps claim as many victims.

The "A" type sanitary pail privy recommended by the United States Public Health Service for unsewered districts (P. H. Bulletin No. 684) complies with all the requirements of sanitary privy. It can be placed in any house, is inexpensive, easily operated, fly proof, water-tight, well ventilated and convenient. The essentials of this privy consists of a fly proof box, self closing holes, a flue which reaches about twelve inches above the house and a metallic water-tight can for the reception of the excreta.

The cement vault sanitary privy is more expensive in the beginning, but is much cheaper in the long run, because the cost of operation is not as much as the pail type, and the construction is more permanent.

The excreta from the pail system and the cement vault should be

removed some distance from the water supply and buried in the active layers of the soil, to a depth of about fifteen to eighteen inches.

The septic tank system has its advantages and disadvantages. It is expensive in that adequate plumbing with water pipes are necessary. It should not be used in thickly populated sections with shallow wells and with a clay soil.

GARBAGE

Garbage scattered over the yard will attract and serve as a breeding place for the house fly. A receptacle should be provided to receive all refuse from the kitchen. The receptacle should be screened from flies, and made of fly proof material so that the refuse can be burned from time to time. Refuse that won't burn, such as tin cans, broken china and glass-ware should be carried some distance from the house and buried or dumped on some vacant or uncultivated land. The dish-water, slops and vegetable refuse of the kitchen can be disposed of at the hog-pen, or else carried some distance from the house at frequent intervals and the container emptied.

Manure should not be allowed to accumulate in the cow lots or horse stables. The manure should be thrown out in the sunshine each day, or kept in a fly-tight and water-tight bin and hauled off once a week and scattered out in the field.

The idea of this paper has been to present sanitary measures that are practical and applicable for the average rural home. Many of the measures above outlined have been advocated by the Public Health Service in its sanitary surveys of the various counties of the United States. Those counties which have enjoyed the benefits of the sanitary survey have not only shown a marked reduction in filth born diseases, but also, reduction in other diseases.

THE RELATION OF SYPHILIS TO INFANT MORTALITY

By Millard Knowlton, M. D., C. P. H.,

Regional Consultant, United States Public Health Service,
Director, Bureau of Venereal Diseases, North Carolina State Board of Health.

The term infant mortality refers to deaths under one year of age. Since stillbirths are recorded as such and not as births and deaths, they are not included in infant mortality. (1) Miscarriages during the early period of gestation are not recorded at all.

It is a striking fact that approximately 46 per cent of all deaths under one year occur during the first month of life. (2) Half of all

such deaths occur during the first six weeks after birth. These figures serve to focus attention upon the problem of saving babies under one month of life. Deaths during this early period are due chiefly to prenatal causes. In order to know what preventive measures will be effective, it is necessary to inquire into the nature of these causes.

Grouping all the deaths under one year in a few simple groups as to cause, gives us the following approximate percentages of deaths from different causes: (2)

42 per cent from natal and prenatal causes
24 per cent from gastro-intestinal diseases
14 per cent from respiratory diseases
8 per cent from epidemic diseases
12 per cent from all other causes.

Thus it appears that by far the largest group of deaths under one year is related to natal and prenatal causes. Inquiry as to the nature of these causes soon leads to the discovery that syphilis is one of the important factors. Not only is syphilis an important cause of death soon after birth, but it is also an important cause of stillbirth and of miscarriage.

Our knowledge concerning the relation of syphilis to infant mortality is as yet very incomplete. Statistical data bearing on the subject is fragmentary, and is often the result of special selection, so that general conclusions may not be justifiable. One author (3) who has made a careful study of the problem gives the following summary of available data:

> From 10 to 20 per cent of adult males and about 10 per cent of married women are syphilitic and a minimum of 10 per cent of marriages involve a syphilitic individual.
>
> Seventy-five per cent of all the offspring in a syphilitic family are infected.
>
> In a syphilitic family 30 per cent of the pregnancies terminate in death at or before term, a waste three times greater than is found in nonsyphilitic families.
>
> Thirty per cent of all the living births in a syphilitic family die in infancy as compared to a normal rate of 15 per cent in the same class.
>
> Probably 25 to 30 per cent of clinically syphilitic infants die as a result of syphilis.
>
> But 17 per cent of all the pregnancies in syphilitic families result in living nonsyphilitic children who survive the period of infancy.
>
> About 5 per cent of our infant population is syphilitic.
>
> According to St. Louis vital statistics, 3½ per cent of all infant deaths are ascribed to lues.

The following additional data is furnished by various authors: (4)

Spaulding (5) reports that 600 children with venereal diseases were treated in the Cook County Hospital in twenty-seven months.

Stokes (6) says that 75 per cent of children of syphilitic parents die before birth or during their first year.

Routh (7) says that 20 per cent of fœtal deaths are caused by syphilis.

Wile (8) is quoted as saying that the infant mortality rate is higher in syphilis than in scarlet fever, diphtheria, influenza, or tubercular meningitis.

DeBuys & Loeber (9) report that 83.96 per cent of foundlings in the institution studied showed congenital syphilis. (This percentage is based on a positive luetin reaction in 79 cases or 74.53 per cent and on clinical findings in 10 cases or 9.43 per cent of the 106 cases studied. All gave a negative Wassermann.)

Spohr (10) quotes European and American statistics giving the incidence of syphilis among the new born as ranging from 6 to 35 per cent. (Special selection is evidently responsible for some of these higher percentages.)

Findlay (11) is quoted as saying that 20 per cent of all pregnancies terminate by miscarriage or death of child, and that 75 per cent of all deaths from syphilis occur in children under five years of age.

Williams (12) reports that 183 out of 705 stillbirths were caused by syphilis. (This gives a percentage of 26.)

Bertin (13) thinks that neurosyphilis causes 30 per cent of epilepsy and idiocy.

Various authors (14) find that from 42 to 60 per cent of mentally defective children have positive Wassermanns.

Osler (15) is quoted as saying that more families in the community are tainted with syphilis than with tuberculosis.

Osler's (16) arraignment of syphilis as a destroyer of infants is particularly drastic as is shown by the following quotations: "Syphilis is perhaps the most common cause of abortion." "When I was a pathologist and physician to an infant's home, we did not have—nor did we need—Schaudinn or Wassermann or Noguchi to tell us of what 95 per cent of infants died during the first month. Jonathan Hutchinson and Parrott and Diday and Fournier had told us that." Osler estimated that at least 20 per cent of the stillbirths and between 15,000 and 20,000 of the 90,000 deaths of infants within the first year reported in England for the year 1915 were due directly to syphilis.

With reference to the incidence of syphilis nearer home, Royster (17) reports the results of a routine Wassermann upon all children

brought to the King's Daughter's Children's Clinic at Norfolk for treatment of any kind as follows:

Percentage of positives among 341 white children	7.04
Percentage of positives among 659 negro children	15.47
Total percentage of positives	12.5

Dr. J. Whittridge Williams (18) reported to the New York State Medical Society that among 4,000 (1,839 white—2,161 black) consecutive deliveries in Johns Hopkins Hospital in the period preceding December 31, 1919, there were 302 fœtal deaths. Careful study revealed that syphilis was the cause of 104 or 34.44 per cent of these deaths. It was the cause of 12.12 per cent, or one of every eight, of the deaths among the whites and 45.23 per cent, or almost half, of the deaths among the blacks. Of these 4,000 mothers, 421 had a positive Wassermann reaction and antiluetic treatment was begun as early as possible. Some cases came under observation too late for the treatment to have any value, but some idea of the effects of antiluetic treatment can be observed if the patients be divided into three groups as follows:

Group 1. In this class there were 157 women who received no treatment and 52 per cent of the children were born dead or presented some evidence of syphilis.

Group 2. In this class there were 103 women who received only two or three injections of salvarsan and no after treatment and 37 per cent of the children were born dead.

Group 3. In this class there were 163 women who received satisfactory treatment achieving a negative Wessermann and but 7.4 per cent of the children were born dead.

From this study Dr. Williams concludes, "The evidence at our disposal shows that if syphilis is recognized early in the pregnant woman, and is intensively and appropriately treated, almost ideal results may be obtained as far as the child is concerned."

From this hasty and rather fragmentary survey of the problem it is quite apparent that there is much work to be done in the reduction of infant mortality through the prevention of syphilis. Essential factors in the prevention of syphilis are the discovery and proper treatment of adult carriers. To bring about this result an educational campaign designed to cause infected persons to seek treatment is of fundamental importance. This may be considered as a function of the health authorities. As physicians, the members of this audience

will be especially interested in the medical aspects of the problem. Accordingly, I wish to emphasize a few points on the medical side:

1. In the first place let me urge the importance of adequate medical service available to all citizens of the State. By this I mean enough medical practitioners with special knowledge of syphilis so distributed over the State as to be accessible to all infected persons. Where possible it is preferable in the interest of public economy to have infected persons treated as private patients who pay for their own treatment. When necessary, patients should be treated at public expense to protect the public health. Responsibility for such treatment is placed by law upon the county.

2. In the next place let me strongly recommend that every member of a syphilitic family be examined for possible syphilis. It is a simple matter to examine for clinical evidence of syphilis and take a specimen of blood for a Wassermann test. In the interpretation of Wassermann results, it is well to remember that perhaps 15 or 20 per cent (about 5 per cent of untreated cases and 25 per cent of partially treated cases) of active tertiary syphilis will give a negative Wasserman reaction. But the Wassermann test will pick up a large number of cases that otherwise would escape notice. Certainly every member of the family of a syphilitic should be subjected to the Wassermann test, whether clinical symptoms are present or not.

3. In this connection it should be remembered that syphilis is syphilis no matter in what stage it occurs. Thus a patient suffering from paresis, tabes, syphilitic aortitis or other late manifestation of syphilis, is syphilitic just the same as a patient with florid syphilis. All members of the families of such patients should be examined for evidences of syphilis.

4. Syphilis is so frequently the cause of miscarriage, stillbirths, or death after birth from congenital debility, that it is advisable to make a Wassermann test of the parents in such cases. This procedure will result in discovering a syphilitic cause in a large number of cases where it is present, and thus permit giving specific treatment.

5. If one accepts at its face value the statement that 10 per cent of married women are syphilitic, it might be worth while to consider the advisability of a routine Wassermann on all pregnant women who come under observation prior to childbirth. Certainly wherever there is a history of previous miscarriage or other reason for suspecting syphilis, both a clinical examination and a Wassermann test are indicated. In all cases where syphilis is discovered in a pregnant woman, vigorous treatment should be administered. Treatment at this time treats two, mother and child.

6. As a general measure of protection for future children very careful attention should be given to all cases of venereal sore. Every such sore should be examined repeatedly by the "dark field" method for the treponema pallida before a diagnosis of chancroid is accepted. It is the early diagnosis of syphilis that gives the best hope for a speedy recovery.

7. Let me emphasize also in the interest of future children the importance of thorough treatment of syphilis. Ehrlich's dream of a complete sterilization of infected persons by the destruction of all spirochetes with a single dose of arsphenamin has vanished in the light of experience. There is yet too great a tendency, however, to stop treatment as soon as one course of treatment has caused the symptoms to disappear. Such a policy frequently permits a relapse and then the second state of that man is worse than the first. Had I the power to do so I would indelibly impress upon your minds the necessity for thorough treatment, as well as for early treatment, in the interest of the patients themselves, their associates, and their children.

In conclusion it appears that syphilis is an important factor in the waste of infant life, especially before birth and during the first month after birth. It follows that the prevention of this unnecessary waste is possible only by the prevention of syphilis. This king among diseases, that ranks with tuberculosis as a cause of death, is unique in the destructive force it carries to the next generation with such havoc to unborn and new-born children. If the germ plasm of the race is to be protected against its ravages, it is necessary to give attention to the adult carrier. The prevention of syphilis among infants and children is possible only by the prevention of syphilis among adults. This means early diagnosis and vigorous treatment extended for a sufficient length of time to insure against relapse.

NOTES AND REFERENCES

1. During the past seven years, stillbirths were reported in North Carolina as follows: 3,572 in 1914; 3,471 in 1915; 3,873 in 1916; 3,706 in 1917; 3,696 in 1918; 3,271 in 1919 and 4,171 in 1920. Total for the seven years 25,760.
2. These percentages are based on the deaths under one year in the registration area for 1916.
3. Jeans—Syphilis and Infant Mortality—American Journal of Syphilis, January, 1919.
4. Most of these data and references are given in a memorandum on "Venereal Diseases from the Angle of Child Hygiene," prepared in the office of the Public Health Service at Washington.

5. Spaulding—The Problem of Venereal Disease in its Relation to Penal Institutions—Medical Record, April 27, 1918.
6. Stokes—Today's Problem of Disease Control—U. S. Public Health Service.
7. Routh—Ante-natal Syphilis—American Journal of Syphilis, July, 1919.
8. Wile—Health Classes for Children—New York Medical Journal, October 25, 1919.
9. DeBuys & Loeber—Congenital Syphilis in an Institution—Jour. A. M. A., October 4, 1919.
10. Spohr—Results of Routine Wassermann Tests—Ohio State Medical Journal, January, 1920.
11. Findlay—Syphilis in Childhood—London, Hodder & Stoughton.
12. Williams—Syphilis in Prenatal Care—Bulletin, Johns Hopkins Hospital, May, 1920.
13. Bertin & Gayet—Quoted in Editorial—Medical Record, December 13, 1919.
14. Jeans—A Review of the Literature of Syphilis in Infancy and Childhood—American Journal of Diseases of Children, July-August, 1920.
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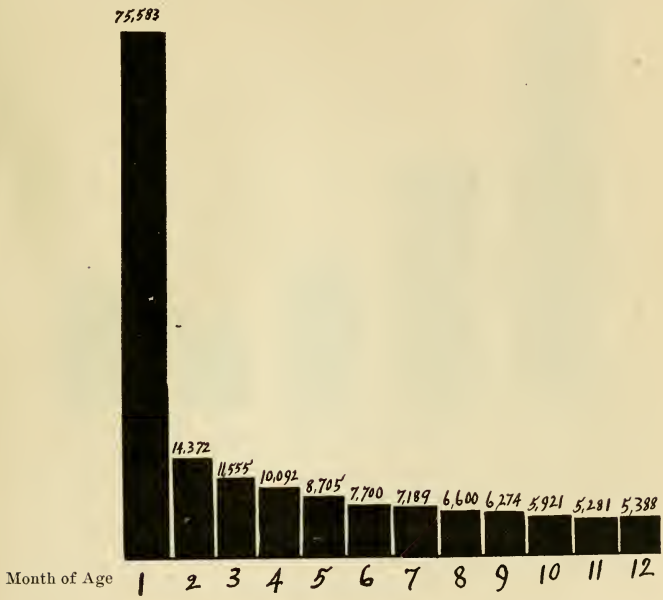
16. Osler—Oration before the Medical Society of London on the campaign against syphilis—Lancet, May 26, 1917.
17. Royster—A Statistical Report on the Incidence of Congenital Syphilis—American Journal of Syphilis, January, 1921.
18. Williams—Quoted in a circular letter to the physicians of New York State sent out July 19, 1920, by Dr. Herman M. Biggs, State Commissioner of Health.

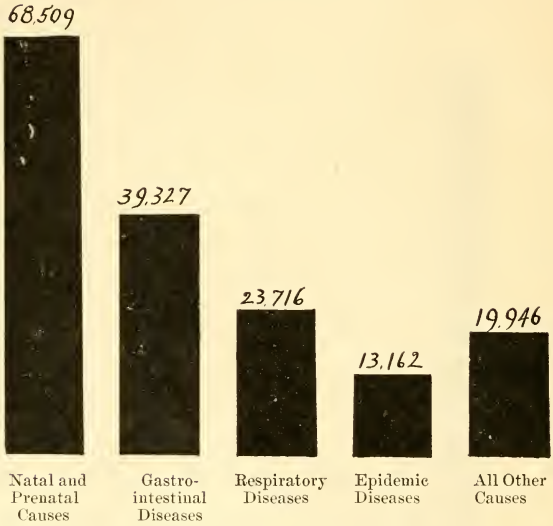
DEATHS UNDER ONE YEAR BY MONTHLY AGE GROUPS

U. S. REGISTRATION AREA, 1916



DEATHS UNDER ONE YEAR GROUPED AS TO CAUSE

U. S. REGISTRATION AREA, 1916



REGISTERING EXPECTANT MOTHERS

Rose M. Ehrenfeld, R. N.

Director, Bureau of Public Health Nursing and Infant Hygiene, State Board of Health.

The story told yesterday at the State Health Officers' meeting by North Carolina statistics indicates the need of bringing to the attention of the medical profession generally the subject of "Registering Expectant Mothers."

The Rt. Hon. John Burns said: "Give me intelligent motherhood and good prenatal conditions and I have no doubt of the future of this or any other nation."

The fact that over half the infants' deaths are chargeable to causes antedating birth (therefore not touched by current method in health work of educating the mothers and only partially reached by prenatal work) is THE PROBLEM challenging the attention of the public health profession today. It should receive attention from the general medical profession—nurses, welfare workers, teachers and parents, all of whom have a definite obligation to childhood.

11,749 babies under 5 years of age died in North Carolina in 1917 (which was one out of every 6 born); 2,626 from diarrheal diseases (1,456 under one year and 1,170 in their second year). Congenital debility, lack of care, etc., claimed 2,046—most of them during the first month of life. There were 4,672 deaths under two years from diseases largely *preventable* by proper *education* of the *mothers* in the care and feeding. 3,153 stillborn babies, *many* of whom *might have been saved by a reasonable knowledge of prenatal hygiene.* "Getting the prenatal message to the mothers" is the point we wish to discuss.

Ours is a rural problem, generally speaking, and adding to the complexity are—

1. The adverse environmental conditions of the rural community.
2. The lack of appreciation of the economic value of human life.
3. The deplorable fact that the need of a veterinarian is more often realized and heeded than the need of a physician. Even so, our consolation is in the fact that the achievement of the 269 largest cities of the United States in attaining a death rate of 87 per 1,000 born alive—as compared with 131 of a few years ago, or even higher, and denoting progress to be proud of—shows that American mothers can be counted on to support physicians, health officers and health agencies

in their campaign against infant mortality. In this State it seems to be largely a question of "reaching the folks."

"How can this best be done?" is the question that naturally arises. I believe by the properly trained public health nurse who is the worker (endowed by nature and prepared by training) best fitted to establish a direct relationship with the rural home and personal contact with the mother (who frequently is also an expectant mother). However the field is large and such workers few, leaving the greater part of the State without such service.

Let us consider another contributing factor to our particular problem, viz., midwives—numbering 4,000—ranging in intelligence from the aged, unclean, illiterate and sometimes law-defying negro woman to the intelligent young white mountain man who is carrying on the work of a faithful old mother who for years responded to the emergency calls of her neighbors in the remote mountain section (distant from a doctor) in much the same manner that one would render a neighborly service in case of death.

Taking casually from last year's record of births, I find the following for the month of April: From A——— County, 61 births attended by midwives as compared with 38 by physicians: B———, 46 by midwives and 38 by physicians; B———, 42 by midwives and 20 by physicians; B———, 55 by midwives and 24 by physicians; A———, 42 by midwives and 17 by physicians. Such statistics indicate the need of reaching the midwives, by personal contact, with a message of prenatal hygiene, as well as reaching the home.

An outline of instruction for midwives was submitted sometime ago and approved and a public health nurse-representative of our Bureau has been sent into 57 counties of the State where there are no health officers or public health nurses and 899 midwives have been reached in conferences held usually at the Court House—sometimes at a school or the railway station. They have responded to a notice from the Bureau of Epidemiology (with which they register) to meet at a given hour and date with a representative of the State Board of Health, who will acquaint them with the laws relating to their practice. The instruction given emphasizes their registration, the registration of births and the use of silver nitrate. A demonstration in use of same is given and those who can write are taught to fill out a birth certificate. After an intermission for lunch the principles of cleanliness and personal hygiene are presented. The difference between a normal and an abnormal period of pregnancy is explained and an attempt made to make them feel their responsibility for human life and for the securing of medical attention when indications of

abnormalities present themselves. If time permits, preparation for confinement and something of the care of the newborn babe and mother is discussed. (The following from a member of your Medical Society: "I have seen the effects of Miss M———'s work already, as several of the midwives have called me in cases they would ordinarily have handled themselves; and they seem more anxious to carry out any advice or suggestions which I have to offer, and the spirit of co-operation seems to be better. Keep up the good work and save the mother and baby.") The object of this simple instruction is to discourage midwifery where there is adequate medical service and to make the best of an undesirable service where none better exists. (The following from one of the midwives: "Miss M———, I enjoyed your lecture fine. I could have sit and listened all day. I don't think I have ever heard a better talk on the thing you spoke about and I was glad there was so many present. There was one in my township that did not use the drops for the baby's eyes—also they have been telling their patients that it would put their eyes out. Of course they had not registered before the other day. I had been telling them what was law but it didn't do any good. Now if they don't do accordin' to law I am going to notify the State Board of Health.") Accompanying this letter was a list of four expectant mothers.

As many of the physicians know, our Bureau runs a *prenatal registry,* sending to expectant mothers throughout the State, whose names, addresses and approximate dates of confinement are made known to us, a series of *prenatal advisory letters*—intended to supplement advice given by the physician and to help the expectant mother to safeguard her welfare and more intelligently follow instruction of her physician. They are intended to discourage midwifery by emphasizing need of medical supervision during pregnancy and proper medical attention at confinement and have been the means of securing a physician for many patients heretofore employing midwives, as we send to any expectant mother expressing her intention of employing latter a letter on what she should expect of a midwife.

The past year 4,028 expectant mothers were registered and received help. (One of them—typical of the letters received—expresses herself as follows: "When receiving your book on Infant Care I had a baby on the bottle and it was very helpful. Since then I have had another baby and the literature sent has given me many important points I never knew. I am very thankful for the prenatal letters, also thankful to my physician for remembering me when sending you his list of names.")

Of the 4,028 cases reported, nurses have registered the greatest number; physicians next, then patients themselves or members of their family; midwives; industrial workers; registrars and others. Physicians have registered one-seventh of the total number and the following from a physician in the State shows the importance he attaches to a prenatal registry: ("In regard to the work that you are carrying on, I would like to say that I deem it sufficiently important to be incorporated in a law making it compulsory for every woman in North Carolina to report her condition to the Bureau by the fourth month to be advised accordingly. To this end I will be willing to write Dr R——— or any other letters you deem necessary to carry out above stated program. Below is a list of all my obstetrical cases that I could get the addresses of.") Attached to this letter was a list of 33 expectant mothers.

This letter read to show the degree of co-operation we are receiving from some of the physicians which is certain to make a difference in the maternity and infant mortality of their counties. It is "results" we *all* want and the sooner all agencies adopt a common program and aim, the sooner and greater will be the results. It is to ask your help in declaring of North Carolina a Safety Zone for Babies that I present the subject. We need your help as reaching 4,028 prenatal cases when compared with the 1920 birth rate of over 83,000 is a poor showing for what we wish to accomplish.

When considering the easiest way for the busy physician to report such cases—some of them are using cards supplied by our Bureau (shown); some of them are systematically sending lists of names, addresses and confinement dates; some use a prescription blank for every case coming to their attention, writing thereon name, address and date of confinement, putting it into the hands of patient with the request that she mail it to State Board of Health, Raleigh. We welcome suggestions of simple methods.

We feel a very definite present-day obligation to the profession of motherhood and to which the State of North Carolina is indebted for 83,966 new citizens last year and we need the help of every practitioner in the State in meeting this obligation to the most sublime of professions. Will you help us to lessen the uncertain chances of motherhood and babyhood by putting us in touch with the expectant mothers?

DISCUSSION

Dr. A. H. Lindorme, Wilkesboro: It is exceedingly timely to consider this paper. I am doing health work in Wilkes County, the

northwestern corner of North Carolina, and I have just completed the round of my county with the sheriff and interviewed the midwives. I find most of them interested and anxious to learn and I think I have accomplished something. One I found who said, "I was ordained by God to do this work." But before I got through, I think I impressed her with the necessities she would have to do, while on earth and she could do the other later on. I always have asked them about convulsions, and told them of the things that could be done to prevent this. I asked if the case came to the physician or midwife beforehand and invariably I find the midwife did not know anything about the case until the man came after her, she would ride back with him on the mule and take charge of the case. I did a little missionary work by telling where the ankles were swollen and there was headache to explain to the patient that she should get help from a physician. I would rather have help beforehand from doctor and let the midwife deliver the child, than not get treatment beforehand at all. In the mountains where it is hard to get a doctor it is pretty hard to tell what to do. Another thing I have learned, I have tried to impress on them the seriousness in a case of hemorrhage. One told me she read out of the Bible, laid the Bible under the bed and prayed and the hemorrhage would stop every time. The other striking thing was some of the midwives told me confidentially when I showed the little ampules, she said I was with Doctor So and So and he didn't use it. I said maybe he did and you didn't notice it. She said, "I knew that he ought to use it." I am going to follow that up and I think that doctor will hear from Raleigh. The doctors should set the example for the midwives. We have some very good ones in Wilkes County, who are trying to do honest and conscientious work, but, as I say, we have the best doctors in North Wilkesboro and some of the midwives are thirty miles in the mountains.

Dr. E. R. Hardin, Lumberton: I am familiar with the work that this bureau is carrying on and with the literature they are sending out. I have been somewhat discouraged from the fact that our doctors have not taken advantage of this work as they should have. It is a great help to the doctors if they could see it that way. The midwife problem is one of the big problems that we have to face in public health work, and is one of the doctors' problems. The medical men in my county are getting stirred up, so much so that they want a law to regulate midwives. We already have a law regulating midwives and have had two years. We have meetings, and at the last one about seventy midwives were present.

Miss Ehrenfeld's estimate of about 4,000 in the State is very conservative. I don't believe it will near cover it. They are largely an ignorant, uneducated class of people and need regulations. If we are ever going to eliminate the midwife problem it is going to be gradual and will come about by the education of the mothers. The midwives are doing more of this work than the doctors are—a great deal more—and if the midwife problem is ever eliminated it will have to be a gradual process of education on the part of the people and, in my opinion, this is the most forward step that has been taken. One doctor said if a man reported his maternal cases to this Bureau and it sent out the letters that the woman would never again call on that particular physician for treatment in her family. I do not believe that, and I do not think this doctor, who is not a general practitioner, had thought about the matter in the right way. I cannot see how any person could take exception to it. The doctor could at least ask his patient whether she cared to receive this literature or not. I do think any woman of any intelligence can get a great deal of information out of this literature and it will mean a great help to her. Probably after she has received the literature once or twice, that family will be calling in a doctor the next time instead of a midwife.

Dr. E. T. Hollingsworth, Clinton: The midwife, to my mind, is a necessary evil. In my county the Board of Health got together and got some resolutions passed requiring the registration and training of its midwives, asking them to come before the health officer and take a course of instructions and during this course of instructions, points were brought out along the lines of cleanliness and sanitation, getting each case to send in a specimen of urine every thirty days after the first two months and then every two weeks. As a result we are overrun with work. If we find a case that needs attention we immediately report the matter to the family physician and not to the midwife alone but tell them not to become engaged in the case but to help and assist in the case.

Dr. K. E. Miller, Raleigh: Dr. Hollingsworth has made mention of a very profound fact, as was also brought out in the discussion yesterday, namely, that the midwife is here to stay. We may call her a "necessary evil" if we see fit, but I want to go a little further than that. I am not so dead certain that the midwife is an evil. I want to be understood in this remark. I do not say this to the discredit of the doctors, but we know a large number of women who are delivered by midwives that are not able to pay the doctors, so that

the doctor would be doing the work for which he would receive no pay, in a great many instances. Therefore, midwife service is a help to the doctors. We must agree, I think, that a normal case of labor will be just as safe in the hands of a midwife, who knows anything about ordinary cleanliness, and who knows enough to let the woman alone and let labor take its course, as in the hands of a practitioner. A sensible doctor lets things take their own course as long as everything is normal. In this restricted field there is a place for the midwife, even disregarding the fact that she is going to operate whether we want her to or not. My experience with midwives is the same as that of every one else, that they are almost universally, in North Carolina at least, old negro women, negro grannies, and among those with whom I have had dealings, I think about five per cent can read or write. Therefore, we cannot expect to give them any course in obstetrics. All of us here, I suppose, are men who have had some medical training, including obstetrics, and yet I daresay there are a very few who would consider themselves competent to handle any case that comes along. We have to call on expert assistance where expert assistance is required. As regards the birth of the baby, the obstetrical part of it, we are out of place to try to teach the midwife any obstetrics. We can, however, teach her to be clean and to let things alone, and that is exactly what is being done in bringing the midwives under supervision. But the midwife problem does not end here. After the baby is born there are two patients. Herein, I think, lies the midwife's greatest sphere of usefulness, and here also, the midwife may become an asset rather than a liability. These old negro women, illiterate for the most part, are, nevertheless, very amenable to instruction. They are a pretty good sort of folk, and very impressionable. If you go before them with instructions, they will take these instructions and carry them out a good deal more faithfully than the average doctor. For instance, in Edgecombe County, Mrs. Vaughn, when she was in charge of this phase of the work, sampled the community, including the doctors and the midwives. The latter had been under some supervision and had learned the lesson that they were expected to respond whenever called upon for any information. I think she sent to about thirty-eight midwives requesting prenatal case reports. I think she received reports from thirty-two, whereas, she received only one or two from the doctors of the county. Of course, it is different with the doctors in this respect, since they, themselves, are capable of advising expectant mothers in regard to the proper management of affairs associated with the puerperium. The midwife looks upon it as an obligation, and I give the foregoing

as an illustration of the fact that the midwives can be expected to respond pretty well when called upon. These midwives are pretty generally practical nurses. As a matter of fact, that is what they are primarily. Investigation will bear out the fact that the mothers who are attended by midwives more or less look to the midwife for instruction during the first year or two of the baby's life. Here is where we can get in the best work, namely, the instruction upon practical nursing lines, that will carry into the homes these ideas of infant welfare that we are trying so hard to put across. We know that an adequate nursing staff for any county would not consist of one nurse but many nurses. Therefore, it is almost out of the question for us to think of doing rural infant hygiene work adequately with the trained nursing forces that we have. If we can make use of these midwives to mingle among their clientele and be the lieutenants of the nurses, by that means we have a host of direct assistants, under the supervision of the Public Health Nurse. And so it goes with the maternal welfare. I recall this, for instance: when I was doing health work in Edgecombe County I found that there was a pride among the midwives in getting the women up as early as possible. If the woman could get up in five or seven days the case was looked upon as an especially successful one. We know this to be a very pernicious practice, resulting, of course, in a multitude of gynecological troubles in after years. By teaching the midwives the importance of keeping the women in bed at least ten days or two weeks, and by that means alone, we can accomplish great benefit to the mothers. Therefore, I say we should not look upon the midwives altogether as a menace or evil. She is capable of a great many useful and important services to the community, and should, therefore, be managed accordingly.

PEDIATRICS

Dr. Aldert S. Root, of Raleigh, was elected as Acting Chairman, as the Chairman, Dr. Yates W. Faison, of Charlotte, could not attend the meeting.

The paper of Dr. Yates W. Faison, "Epidemic Acid Intoxication," was read by title.

OUR CHANGING ATTITUDE TOWARDS THE NUTRITIONAL DISEASES AND DISORDERS

William Weston, M. D., Columbia, S. C.

In an article read before the Section on Pediatrics of the Southern Medical Association, Louisville, Ky., Nov. 15th-18th, 1920, entitled "Causes and Management of Athrepsia" I endeavored to demonstrate:

1st. That there appears to exist a definite relationship as regards etiology, symptoms and treatment between athrepsia, acrodynia, pellagra, beri beri, scurvy and rickets.

2nd. It seems that they are caused by some food deficiency, probably vitamin or salts, and in two of these, rickets and acrodynia, probably both vitamins and salts are concerned.

3rd. That athrepsia was caused by a deficiency of vitamins in the food.

4th. That while whole cows' milk contained the fat soluble vitamin in sufficient amount, the reduction of the fats in the process of modification so diminished the fat soluble vitamin that damage would result in the production of disease.

5th. That cows' milk is deficient in the water soluble (antineuritic) vitamin.

I especially wish to discuss at this time proposition 5; namely, that cows' milk is deficient in the water soluble vitamin. This is a matter that has received much thoughtful investigation in widely separated sections of this and other countries, at different seasons and under all conditions. There have been two schools of opinion, one holding that raw cows' milk prevents or cures scurvy and the other contending that cows' milk is deficient in the antiscorbutic vitamin, and would therefore neither prevent nor cure scurvy. Recent investigations have reconciled these two positions. It having been conclusively demonstrated that milk does or does not contain the antiscorbutic vitamin depending upon the fodder that is rationed the cow. Animals are unable to synthesize the vitamins. If they receive a fodder that is rich

in this vitamin the milk is correspondingly rich in this respect. If the fodder is poor in this quality, then the milk will not contain this vitamin in sufficient quantity to act as an antiscorbutic.

My error was due to the fact that my investigations were conducted on the milk from stall fed cows whose food consisted of cotton seed meal and hulls, and if this vitamin was present at all it was in an inappreciable amount.

It has long been known to stock raisers that the young of animals grazed on certain pastures were often so feeble that they did not survive, and that even older stock failed to thrive although the grass seemed to grow upon them in sufficient amounts. This has been explained as a soil deficiency which in turn produced a deficiency in the grass. This may be remedied by so fertilizing the soil with either mineral or animal fertilizer that calcium is restored to the grass. When this is done animals thrive upon it, and the milk of suckling mothers becomes nutritious.

It is natural to assume that if food has such an important influence upon the milk of the lower animals that it should hold good in the case of nursing mothers. We have excellent reasons for believing that it does, since rickets and athrepsia often occur in breast fed infants.

In view of the widespread prevalence of rickets—of all diseases the most often overlooked—in both breast and artificially fed infants, it is well worth our time to consider this disease in connection with our discussion of the vitamins and salts and their etiological relationship.

Our attitude in regard to the etiology of rickets has undergone a very material change within the past two years. We formerly looked upon it as almost inseparably associated with bad hygienic surroundings and in babies artificially fed on foods rich in carbohydrates and deficient in fats. All of which we now acknowledge, but affirm that this mere statement of condition is far from being a satisfactory etiological explanation. In the past we neglected to investigate the diet of the rachitic infant's mother, or if the baby is receiving cows' milk the diet of the cow. In the future it is probable that attention to this matter will be the key to our plan of treatment.

It is perhaps incorrect to positively assert that the sole cause is a deficiency of the fat soluble vitamin in the food, although some investigators are so sure that it is that they use the expression fat soluble vitamin and antirachitic vitamin as synonymous terms. They point with assurance to the fact that cod liver oil is practically a specific cure. We must acknowledge that if cod liver oil is administered in sufficient quantity that it will both prevent and cure rickets. We also agree that it seems that the fat soluble vitamin is present in

cod liver oil in greater amount than in any other known food and exists in such an assimilable form that it quickly stops calcium loss and promotes its deposition.

Hess and other investigators have demonstrated that the fat of human and cows' milk does not always possess vitamin, inasmuch as babies sometime develope rickets on a raw milk containing a normal amount of fat, and that these babies get well when cod liver is given. It has also been shown that often babies do not develop rickets when fed milk containing little fat, but receiving other foods rich in other vitamins. I submit that the percentage of fat contained in the food the baby takes is by no means an important factor in the etiology of rickets, but that *the* important factor is that from whatever source the milk is derived, the mother or cow, whichever the case may be, must receive a generous and balanced diet in order to furnish an antirachitic food. This food then will contain all the vitamins and salts.

It is not unusual to find that babies who nurse pellagrous mothers have rickets. On several occasions when this was observed I have had the mother's milk analyzed and it was seldom found that the fats were much below the normal percentage. Yet when these mothers were fed what we term a balanced diet the baby steadily improved and invariably got well. Of course this statement does not apply to those cases where the mother has reached a very advanced stage of the disease.

My experience in the treatment of athrepsia is most enlightening and it may be of interest to you to relate certain experiments made more than a year ago which I consider of great practical value.

I found that very often athreptic infants reached a certain gain in weight beyond which an increased amount of lactic acid milk did not materially influence weight. It was observed that when the fat was increased as high as 3½% the weight was little influenced, but that a digestive disturbance often resulted. Remembering the experiments of Casimir Funk, the investigations of MacCollum and others, I commenced to add the inner cuticle of rice to the lactic acid milk containing fat. In each of these cases in which the weight was stationery there was a prompt gain in weight. In no case did I change the percentage of fat. Often the gain was so rapid that I feared that I might be overfeeding the baby, but as none became upset my fear soon subsided and in no case was the food reduced in either strength or quantity.

In some of these cases in which the gain in weight was so spectacular a point was reached beyond which there was no marked gain although in these cases the food was increased. In others when the

weight became stationary increase of food resulted in fluctuation of weight, although there did not appear symptoms of either gastric or intestinal indigestion other than in some loss of appetite. Reduction in fat generally resulted in loss in weight. This indeed was a puzzling situation, but after some hesitation and many misgivings I determined to try a feeding of soup composed of vegetables rich in salts and the water soluble vitamin in place of one of the feedings of lactic acid milk with the whole rice gruel. This would seem superflous so far as the vitamin was concerned, but it must be remembered that it has been proved in the treatment of scurvy that sometimes there exists an idiosyncrasy towards a particular food containing the antiscorbutic vitamin. In these cases of scurvy sometimes potato acts much better than orange juice and vice versa.

The case that I selected was a baby that had been sick since spring, first with a very severe infectious diarrhœa that had lasted about eight weeks and had since been markedly athreptic. It was now October and the weather was very warm. He had gained from eleven pounds to fourteen, but around the latter figure his weight fluctuated, sometimes going down to thirteen pounds and just for a day it went as high as fourteen and a half pounds. This condition lasted a week. He was quite pale and his muscles flabby. The first week after the soup was added he gained a pound, his appetite had improved and he was in good spirits. I allowed the mother to take him home with the warning that no change was to be made in his food without my consent and that if he became upset I was to be notified immediately over the long distance telephone. I heard regularly each week and each letter brought good news. The formula was increased in amount from time to time, otherwise no change. Three months later she wrote that the baby had gained regularly and was now thirty pounds, was strong, running all about, his cheeks rosy and to further quote her language, "the pride of the town."

The above case was by no means an exceptional one and is fairly illustrative of my experience in this treatment of athrepsia.

I especially wish to call your attention to the fact that it has been my observation that by the addition of these vitamins and salts the toleration for fat appears to be greatly increased. In several of the cases that showed a limited toleration for fat I was enabled to add fat in increasing quantities after the additions were made as described above, without evidence of disagreement.

There are certain facts that we must keep in mind in order that our feeding cases receive necessary amounts of vitamins and salts.

First: The cows from which the milk is gotten must receive a generous allowance of vitamin containing fodder.

Second: It is less injurious to milk to bring it to a temperature of 212 degrees for five minutes, than it is to keep it at a temperature of 145 degrees for thirty minutes.

Third: Milk prepared by the Just roller process does not appear to effect the vitamins or salts. There is a question, however, yet unsettled as to how long milk thus treated will retain its nutritive value if exposed to atmospheric influences.

A word in conclusion as to the nature of vitamins. We know that they exist and that they have certain essential functions, but we do not know their chemical composition any more than we know the chemical composition of the immune bodies. We are reasonably sure that in the higher animals they cannot be manufactured from within, but must be supplied from well recognized sources. We are also quite sure that these mysterious bodies must be constantly supplied in order to maintain health.

DISCUSSION

Dr. Root: Dr. Weston's work with these athreptic infants is well known, and I hope that you have enjoyed his paper as much as I have. It is a pleasure to have him as one of our visitors here today.

Dr. James Buren Sidbury, Wilmington: I think that Dr. Weston's paper certainly brought home to us the fact that we cannot take for granted everything laid down before us in pediatrics ten years ago. For instance, because the baby is on fresh cows' milk, this does not necessarily mean that it will not develop rickets or scurvy. When I was a student, it was considered an unobserved fact that a baby on fresh cows' milk should develop rickets or scurvy, but that theory was disproved by later observation, and also by Dr. Weston's work and other work along this line. Babies on cows' milk and modified milk may develop these conditions. This observation has stimulated work along this line. I remember Dr. Hess's work and that of other clinical observers. In New York, some of the men who did not believe the fact, disbelieved it because the baby was on straight milk, and advised that instead of one cow's milk, the combined milk of a herd be given to the baby. This was done, and it was cured.

When dry milk first came out, most of us thought that, due to its manufacture, it might be a product that would be scorbutic; and that it should be treated as condensed milk and have orange juice, potato

or tomato juice, added to keep the baby from getting bad results. I saw two cases in the New York Hebrew Infants' Asylum. One case had been treated on a certain food while out of the hospital, and had scurvy; and was then treated in the hospital for ten days with the same food, and put on dry milk plus orange juice. The other child was put on dry milk alone. The one fed on dry milk alone was cured as readily as the one with dried milk and orange juice. This was when the dry milk first came out, and it was very gratifying to me to find that it could be used without producing scurvy.

I want to express the thanks of the Pediatric Section of our Society and to Dr. Weston for bringing this very valuable paper, which I am sure all of us have enjoyed very much.

Dr. H. H. Harrison, Asheville: I did not hear the first part of the discussion, and want to ask whether Dr. Sidbury thinks other dried milks are valuable in scurvy.

Dr. Sidbury: The two products that I am familiar with are Dryco and Klim, which I consider to be as antiscorbutic as fresh whole milk is. The experimental work done by Dr. Hess on Dryco is very conclusive, and the Klim milk is not heated to a degree high enough to change the fats to fatty acids; so it is less likely to be scorbutic. I should like Dr. Weston to give us his opinion in regard to this point.

Dr. Weston: As I understand it, the Just roller process brings the milk to 212° for half a minute's time. When that is done, it certainly does not destroy the antiscorbutic vitamines. That brings up an important question; because in my community and, I suppose in yours, when a dairy claims to have pasteurized milk, this is supposed to be the last word in milk perfection. But, from the experiments done in the last year, especially in the University of Wisconsin, the process of pasteurization is very apt to destroy the vitamines in milk. As I mentioned in the paper, it does less harm to boil milk for five minutes than it does to bring it to a temperature of 134° for thirty minutes. Of course, the formula for pasteurization gives a longer time than that. Therefore, I feel that we should do our utmost to discourage, among the commercial people who are handling dairy products, that idea; because it poisons the mind of the public.

Dr. I. W. Faison, Charlotte: Of dried milk, I have used both the Dryco and the Klim; but I get away from either or both as soon as I can. I find that after a short while, that the child does not gain on

these milks. Whether this is my fault or not, I do not know. With the Dryco, I am able to change to cow's milk better than with Klim. Why that should be, I do not know, either. I have persuaded the people in my vicinity not to buy pasteurized milk. I would rather that the mothers would fix their own milk by bringing it to a boil for five minutes as soon as they get it.

About vitamines, I wish I knew more than I do. The subject seems to be unsayable and unknowable, but in my experience, there is a picture that comes back to me and shows me that there is something away back of it. In the country where they grow cotton and negroes in abundance, I could go to the house where the family owned a farm; and, crying by the road, I would find a little negro child eating bread made of meal and thrown into a pot and boiled for dinner. This child fed on that and pot liquor would go on and fatten. The vitamine was in the pot liquor and in the vegetables and everything that you could put in the pot; and with bacon, it made for the child the best food in the world; and he would not have marasmus, and you could not kill him with every little irregularity in the feeding.

Dr. H. H. Harrison: I should like to ask another question. I should like to ask Dr. Weston whether he regards rickets, from his experience, as purely a deficiency disease—diet deficiency.

Dr. Weston: Yes, I should call it a pure deficiency disease, but rickets is a condition in which the bones have lost their calcium through a failure to receive food for the deposition of calcium; and the child receives food that will permit the loss of calcium. That is why the bones soften or bend, or break easily; and it is why they have cranial thrombosis.

Dr. Root: Is there any further discussion of Dr. Weston's paper? I should like to ask Dr. Weston how he gives the unpolished rice to these babies.

Dr. Weston: There are two ways in which to feed it: either by getting scrapings from the mills, or by getting rice seed and pounding it up, and boiling it for a certain length of time. Of course, if you take rice and sift it, you get the rice coat; and get the whole grain preserved by the outer hull by taking the seed.

PREVENTIVE PEDIATRICS AND THE NUTRITION CLASS A PLEA FOR NUTRITION CLASS METHODS IN PRIVATE PRACTISE

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In a recent discussion on postgraduate education in Pediatrics, the statement was made by a pediatrist, and subsequently printed in one of our foremost medical journals, that "Pediatrics is Internal Medicine with an age limit." It is just this misconception of what Pediatrics really is, and of what it should be, that has hindered the development of this branch of medicine, and allowed many excellent internists to deny its right to exist as a separate department. For if Pediatrics *is* Internal Medicine with an age limit, then it *has* no more right to a separate existence than has its young-old brother, Geriatrics, the study of old age; or a specialty of adolescence, or of middle age, or of any other period that we might choose to fence off arbitrarily from the remainder of the span of life. Its only excuse for existence lies in the fact that, in order to treat children successfully, or even passably well, one must come to realize that he is dealing with individuals that think, act, feel, and develop in ways as different from those of the adult as if they belonged to a distinct species.

To be sure, the claim is readily granted that in order successfully to treat children, one must first have had the very best possible grounding in general medicine, followed by a certain period of the seasoning or "mellowing" to be attained only by the experiences of general practise, in order to learn the delicate art of dealing with the parents of his little patients in such a way as to attain the maximum of cooperation necessary to carry through the measures that he wants to employ. But many a man has all of this, and yet is a lamentable failure in his dealings with children, for the simple reason that he has failed to realize the necessity of erecting upon this general foundation a super-structure of special preparation entirely distinct from that required for successful work with adults.

I think that I am quite safe in citing four separate departments in pediatrics, in each one of which a separate training, a separate approach, and a separate technique, is essential, for in none of them have we anything in adult practise sufficiently cognate to serve us even as a crude guide. The first of these is the matter of successfully

maintaining breast-feeding, in itself a distinct art, I think you will agree. The second is that land of shadows, that dark and bloody ground, infant feeding. The third, is an understanding of the essentials of infant, child, and adolescent psychology, without some inkling of which I venture to say that no man should dare to advise a parent in the multiplicity of problems which are presented to them. The fourth, is that combination of preventive medicine, one-man-diagnostic clinic, drugless healing, and "general-medicine-in-children" that has come to be included in the term, "Nutrition Class." I had the pleasure of discussing the first two of these departments before this section a year ago. It is with the application of the last to the practise of all of us that I have to deal today.

If the Nutrition Class, its principles and practise, were confined, as we generally assume that they are, to the Children's Clinic of the large city hospital, I should not be discussing it at this time, as its interest for us would be largely academic. But it is the fact that its principles and practise correspond so closely with the needs of the man in general practise, one third of whose patients are children, and so would benefit by his understanding and use of these principles, that make the consideration of the subject worth while at this time.

The principles involved, roughly speaking, are these:

1. Somewhere between 1/5 and 3/5 of all children in the United States, regardless of social or financial status, are markedly below the normal standard to which they may fairly be expected to attain. This standard is shown in detail by the little table of expected weights for ages and heights, prepared by the Child Health Organization.

2. The cause of this subnormality, in each individual case, comes directly under one of two heads, either (a) a remediable physical defect, like bad teeth, diseased tonsils and adenoids, orthopedic defect, bad eye-sight or ear condition, etc.; or (b) a faulty health habit, such as insufficient sleep, improper food or food at improper times, overindulgence in sweets, overstrain at school, too much "movies," etc.

3. Naturally, the cure of this condition of retardation lies, not in the prescribing of tonics, iron, cod liver oil, change of climate; but in the removal of the physical defect or the correction of the faulty health habit.

4. In children of four or five, or over, this cure can be obtained far more easily and far oftener, by appealing in some way directly to the child, and securing his co-operation through his interest, than by giving orders to the parents that frequently fail of execution; because, in the last analysis, the child is the ruler in so many homes today.

These four points sum up, in a nutshell, the rationale of the Nutri-

tion Class, the details of which you are all familiar with, from reading accounts in the very recent pediatric and general literature. Has it any message for those of us who are constantly seeing ailing children? To me the answer is transparently obvious. And the lessons to be learned may be summed up under four heads, corresponding to the four principles enunciated above:

1. The family doctor is not fulfilling his duty to his families unless, and until, he lets it be known that he is ready and willing, nay anxious, to make a complete physical and mental examination of every child in those families, while that child is in health, and while there is no emergency to distract attention from the general stock-taking; and to furnish the parents of the child with such an inventory of his health status (Fig. A). We need not delay this discussion in order to answer the silly hypothetical objection that our patients may think that we are "drumming up trade," or trying to make work for ourselves. If our patients can think so lightly of us as this would imply, it is a sad commentary upon our ministry to our communities.

FIGURE A

REPORT OF **DATE**

Age		Average at this age		Recommendations
Weight	lbs.	oz.	lbs.	
Height	ft.	in.	ft.	
Chest Circum.		in.	in.	
Gen. Nutrition				
Skin				
Development				
Mentality				
Vision	L	20 R	20	
Hearing				
Speech				
Teeth				
Tonsils				
Adenoid Tissue				
Glands				
Heart				

Lungs _____

Abdomen _____

Genitals _____

Spine _____

Limbs _____

DR. FRANK HOWARD RICHARDSON.

A corollary to such service, of course, exists in the fact that every medical man has in his possession the knowledge of the existence of three preventive procedures which have a wonderful potentiality as life-savers of childhood; but that such potentiality can be changed into actual life-saving only as someone brings to the knowledge of parents the fact that their own children are entitled to the benefits of the protection afforded to them by these simple, easily-accomplished measures. Of course I refer to smallpox vaccination, active immunization against diphtheria by toxin-anti-toxin after testing for susceptibility by the Schick reaction, and anti-typhoid inoculation. To practitioners who have had the experience you have enjoyed of learning the eagerness of parents to secure for their children such benefits as you gave so freely in the anti-typhoid drive that you carried through in this State a few years ago, no extended argument is necessary. I may say, however, that parents are if anything more ready to secure their children against the terrors of diphtheria, than they are to protect them against typhoid. In neither of these instances do we run across the blind, unreasoning prejudice that is sometimes encountered when we mention smallpox vaccination; but in a State where smallpox is no longer quarantinable, the duty of educating the community in the necessity for protection becomes of paramount importance, if we are to do our whole duty to our patients. The accompanying little summary (Fig. C) of the different benefits held out by these three separate procedures, printed on the back of a "Vaccination Certificate," has proved most helpful in my hands in bringing this matter to the attention of parents, who usually have but to get a clear picture of the matter, in order to gladly avail themselves of the protection offered their children.

FIGURE B

VACCINATION CERTIFICATE

.....

Has been protected against the following diseases:

Smallpox: By Vaccination ..... 192... ..... M. D.
Pronounced Successful ..... 192... ..... M. D.
By Previous Attack of Smallpox..... 19..... ..... M. D.

Diphtheria: By Mixed Toxin-Anti-Toxin Treatment:
Found Immune by Negative Schick Test ..... 192... ..... M. D.
Found Susceptible by Positive Schick Test ..... 192... ..... M. D
1st Inoculation ..... 192... ..... M. D.
2nd Inoculation ..... 192... ..... M. D.
3rd Inoculation ..... 192... ..... M. D.
(Previous Attack of Diphtheria, or Antitoxin Injection does not protect.)

Typhoid Fever: By Inoculation:
1st Inoculation ..... 192... ..... M. D.
2nd Inoculation ..... 192... ..... M. D.
3rd Inoculation ..... 192... ..... M. D.
By Previous Attack of Typhoid Fever 19..... ..... M. D.

(OVER)

FIGURE C

ONLY THREE of the common diseases can as yet be positively prevented by vaccination or inoculation. They are: Smallpox, Diphtheria, and Typhoid Fever.

Smallpox: By vaccination with vaccine on arm or leg. Protection lasts for a number of years. Child should be revaccinated after 14 years of age; and on known exposure to case of Smallpox.

Diphtheria: By three hypodermic inoculations, at weekly intervals, with a mixture of diphtheria toxin and its anti-toxin. (This is necessary only in case the preliminary "Schick Test" has been positive, thus showing that the individual IS susceptible to Diphtheria—that is, would contract it if exposed.) Protection probably lasts during the whole lifetime.
(The protection afforded by large injections of antitoxin, given after exposure to diphtheria, lasts only a few weeks.)

Typhoid Fever: By three hypodermic inoculations, at weekly intervals, with a measured number of KILLED typhoid bacilli. Protection lasts for about three years.

All protection is probably relative, not absolute. Therefore, AVOID EXPOSURE to any disease, even though rendered comparatively safe from it by the above procedures.

2. Any man who deals with children (and who among us does not?) must, in order to be even commercially honest, and give value received, be prepared to completely examine a child. And this must consist, not in a perfunctory glance at the throat and a hasty listening at the chest, but of a seriously undertaken attempt to determine the following points: (a) weight, in relation to age and height, to be ascertained by scales and weight table; (b) eye-sight, by means of simple test card, such as the "Optotype" of Evans, designed for the use of children too young to read the letters on the Snellen; (c) hearing, approximately, by voice or watch; (d) general physical condition, by ordinary methods of physical examination; (e) orthopedic condition, especially as regards the existence of spinal divergence, posture, leg-defect, and flat-foot; and (f) rough approximation of mental age, by means of a hasty attempt at a Binet-Simon test (either Goddard or Terman revision).*

(If any one considers himself unprepared along any of these lines, let me supplement the advertising pages of the various Southern journals, and call to his attention the fact that there is a Southern Pediatric Seminar to be conducted in the mountains of this State this summer, which aims to touch on all of these points.)

*Dr. Richardson here remarked: That sounds more formidable than it is. As you know, Binet worked out a series of tests to be applied to a child whose mentality is under scrutiny. A normal child of a given age should be able to answer the questions for his age correctly, whereas a younger child, or a backward child of the same age, could not. Those who have had experience with the method know that it is a simple thing to evaluate very roughly a child's mental development, and determine whether he is one or two years or more behind other children of his age.

3. The castor oil bottle, the calomel tablet box, the quinine capsule, and the nauseous dose of so-called iron "tonic," as panaceas for all the ailments of childhood, must go the way of Peruna, and other equally nefarious lazy-man's medication, in the light of our present understanding of our problem.* The way to improve the individual child is to remove his defect—and this may call for the highest "selling ability" on the part of the doctor—much more of a task than the mere prescribing of a favorite R/, but giving results that the latter never could hope to accomplish.

4. The doctor who deals with children—and show me the man who does not!—must no longer consider it beneath his dignity to

adapt his office equipment and his manner of address and his mode of treatment to fit into the personal equation of this large segment of his clientele. The drygoods merchant doing business with a buying public, consisting largely of women, does not consider it either bad form or poor sense to equip his shop with the things that women like and find acceptable; in other words, to make his "clients" feel comfortable and at ease during the time that he has to deal with them. Why should it be beneath the dignity of the doctor to make his office a place to which children shall want to come, rather than a chamber of horrors from which they will shrink with dread?** If this seems fanciful, ask some man who has seriously undertaken the problem of equipping his office for work with children, and making it attractive to them, and see whether he would be willing to go back to the old way in dealing with these little patients. I can assure you that he will tell you that nothing that tends to secure the cordial co-operation and confidence of the child is thought or effort wasted; for without this cordial co-operation, the task of the doctor who would deal with children is a dark and dreary one, from which he will shrink almost as much as do the children with whom he has to deal.

*Dr. Richardson here interpolated: Those who have been following the work of the leaders in pediatrics know that they are employing less and less medication, but that when a drug is needed, they use much larger doses than formerly. (Continued reading.)

**Dr. Richardson: Some time ago, a man in Georgia wrote a paper, which I consider a classic, on the subject of the psychic scars inflicted on many children by early visits to the doctor's office. He describes a doctor's office that he visited when a child, and the gruesome impressions made upon his sensitive mind at that early time. In dealing with neurotic adults, we should realize that very often mental trouble in later life goes back to some psychic scar, as the psychiatrists call it, and one of the worst is that given by the old-time doctor's office. (Continued reading.)

I have dealt with my subject in this rather informal way, instead of going into the particulars of conducting a nutrition class, because you have read so much of this lately that you know all about it. The thought that I want to leave with you is that this is not a thing to be left to the hospital or the children's clinic, but should be taken up in your own office.

These are some of the lessons, as I view them, that the Nutrition Class has brought to everyone of us. Everyone of us must learn them, as well as the corallaries that abound so richly in a study of this new development in the field of health and the practise of medicine, if he is to perform any respectable fraction of his duty to that large portion of his clientele—the children.

INFANT MORTALITY

A. McR. Crouch, M. D., Wilmington

In looking over the transactions of the Medical Society for the past five years, I found no record of any paper on infant mortality before the Society. Evidently this question has not been of much interest to the medical men. I believe that here is the place where infant mortality should be discussed because it is only through the medical profession that the rate can be materially reduced. Public health workers deal with this question collectively. They provide sanitary conditions, good water and pure food for the people as a whole. These measures have their effect in the reduction of infant deaths, but they can only scratch the surface of the vast field to be worked. The physician deals with this question individually, and we will see later that the greatest causes of infant mortality require individual attention, medical diagnosis and therapeutic skill to bring about any marked reduction in its rate. Infant mortality shows the effect of the individual doctor upon the individual client, and it is a good index to the trouble that pediatricians have and it gives an idea of the enormous amount of morbid material which passes through our hands on to the general practitioner. For every infant that dies, there must be two or three irreparably damaged for which somebody must care. Every physician knows how difficult to prevent or treat diseases in a defective person.

To support the above statement I will present statistics compiled by the State Bureau of Vital Statistics covering a period of four years, 1914 to 1917 inclusive.

YEAR	TOTAL DEATHS	DEATHS OF INFANTS UNDER 1 YEAR OF AGE
1914	29044	6497
1915	31324	6808
1916	31372	7148
1917	33985	7596
Average per year	31682	7012

Over 22% or approximately one fourth of all deaths occur in infants during the first year of life. For every 11 babies born one dies. It is important to note the comparatively few conditions which cause a very great number of infant deaths. Diarrhea and enteritis, congenital malformations and congenital defects, and causes not given or ill-defined, are responsible for 4,563 or 2/3 of all deaths under one year of age. Of the 4,563 deaths, 1,084 or 1/3 are caused by diarrhea and enteritis, 3,497 or 2/3 are due to congenital defects and debility and causes not given or ill-defined, which class no doubt included a majority of cases rightly belonging to congenital debility. Therefore, in dealing with the great cause of infant mortality, 1/3 of our attention, so to speak, is directed to the care of the living baby and 2/3 of our attention is directed to the babe yet unborn. It seems that the waters are muddied at the source. It is remindful of the scriptural teachings "That the iniquities of the fathers shall be visited unto the third and fourth generations." It appears that the high infant mortality rate is due more to inheritance and improper prenatal conditions than to poor sanitation and hygiene. Therefore, the question resolves itself into the fact that infant mortality can be reduced to its lowest level when the medical profession reaches its highest degree of efficiency. Two things must be done. The public health workers must sanitate the environments, provide good water and pure food, and the medical profession must remedy the defects in the parentage and give proper care to their offspring.

There are three ideas or the same idea originating from three different sources, which when it reaches its full development will be effective in reducing infant mortality. These ideas are: Life extension work, introduced by commercial men, such as Life Insurance Companies; Community health centers introduced by public health workers; and group practice introduced by the medical profession. Life extension work attempts to keep people well by finding defects early and getting them corrected. Good business men know that it pays. Nearly every insurance company has medical men going around, examining policy holders in an attempt to keep them well. Public health workers realize that the death rates cannot be reduced to the lowest line unless their work is correlated with the work of medical practitioners, hence the health center. Physicians know that unless a man confines himself to a certain branch of medicine, and correlates his work with specialists in other lines, he cannot reach the highest degree of efficiency in his practice, hence the group practice.

The object underlying the development of these ideas is the production of efficiency in preventing disease, healing the sick and re-

ducing morbidity and mortality. We have seen that tuberculosis, typhoid fever and venereal diseases contracted by the babe are not mentioned as the direct cause of any great number of infant deaths, but if the indirect effect of these diseases could be analyzed, the result would be appalling. The above diseases cause over 5,000 or more than 1/6 of all the deaths in the State. They occur principally in people of the child-bearing age. Thousands of mothers are taken away from their nursing babes and thousands of others who do not die, are left unable to nurse their young. Thousands of fathers of infants die of these diseases, leaving anxiety and increased hardships on widowed mothers which prevents the proper nursing and care of the baby, forcing it to leave the breast and go to the bottle. It has been proven that the death rate among artificially fed babes is three to five times as great as in the breast fed. If tuberculosis, syphilis, and many other conditions are recognized early and treated energetically, many hundreds of deaths can be prevented.

Aside from the indirect effect just mentioned of tuberculosis, syphilis, and other preventable and curable diseases upon our infant death rate, there are hundreds and thousands of deaths produced by the effect of the diseases upon the mother during her pregnancy, resulting in congenital debility and death of the infant. This takes us back to the babe yet unborn and we have already seen that here is where 2/3 of our attention must be directed. The remedy consists in carrying the mother to term in the best possible condition, and how to do that you are more familiar than I.

There are many other conditions such as the economical, climatic and environmental which affect infant mortality, but these I will not attempt to discuss. There is one more thing of great importance which should be mentioned and that is the teaching of mothers how to care for their babies. This can be done more effectually and quicker through the personal contact of the doctor and mother than in any other way. Educating the mother in caring for herself and baby has brought about a remarkably low death rate in New Zealand.

Something more must be done to reduce our infant mortality.

The rate of the four year period is as follows:

YEAR	INFANT MORTALITY RATE PER 1000 BIRTHS
1914	90.3
1915	85.6
1916	93.3
1917	99.3

Every physician will admit that infant mortality can be reduced. It is being reduced in the registration area of the United States and in other countries. New Zealand has the enviable infant death rate of 48.2 per thousand births.

Gentlemen, the time is at hand when we must consider this question more seriously and put forth our best efforts in reducing infant mortality. The laymen are beginning to learn more about these things and demanding more consideration at our hands. Infant mortality is going to be reduced. If the doctors do not take advantage of the situation and handle it, organized society will. There is already a move on foot known as Health Insurance, the principle of which is the protection of health and care of the sick through medical practice controlled by the State. It has been introduced into Germany, hotly discussed in England and spoken of in the United States. We can make Health Insurance unnecessary and unless we do it State control is inevitable.

DISCUSSION

Dr. I. W. Faison, Charlotte: There is just one thing to be said about infant mortality. I do not want to charge it to the pediatrist; but it is the want of a trained professional obstetrician. If there is any branch of the medical profession of the country that is not doing its duty and producing the results that it should, it is the obstetrical. I quit it, when Prof. Williams of Johns Hopkins called me a "man midwife." When he said that, I had dignity and honor enough to quit right then and there. I went down to Kinston and made a study of the feebleminded. I found that out of sixty children there, several were imbeciles, cripples, etc., because some obstetrician had put a pair of forceps on wrong and injured the child, and made it ever afterwards a care on the State of North Carolina.

Of course, the great majority of women go along all right until the baby is born, and you do not need to touch them. I remember one case in Philadelphia, Pa., there, where they think they have got all the sense, but they have not. Every woman that that man had been attending for twenty years had puerperal fever. If he had put his hands in his pockets, he would not have had that mortality.

Dr. William Weston, Columbia, S. C.: I think we have had given us a great amount of material for serious consideration in Dr. Crouch's paper. When the question of infant mortality is discussed, I feel my deep personal responsibility in the cases that come under my sphere of influence and that of my profession, of which I am, generally

speaking, very proud; but I think that Dr. Faison struck the keynote this morning, when, in very expressive language, and very boldly, he said that the pediatrists must change their position, and not stand back and allow the Board of Health to direct their work; but must direct the Board of Health's work. When we know that seventy-five per cent of dead infants have died of preventable causes, there must come to each one of us a profound sense of responsibility.

Why is it? It is because we have failed to teach the things we know. It is not a matter of theory. Years ago, Dr. Jacob preached these things, which, if they had been followed, would have materially altered the census figures for your State and mine. But because we have not done so in the past, there is no reason why we should not correct these wrongs and look after the matter in the future. We know this: that most infants are born sound; and that there is no reason why they should not remain sound. If they do not, it is largely because we have not exerted the influence which we either have or should have.

Now what is that? What is the foremost step that we might take—that, year after year, the Committee on Public Policy of the Pediatric Section of the American Medical Association has insisted on? It is all bosh that the bridge-whist players can not nurse their babies. Of course, they can. Let us insist that they do, and tell them if they do not, and the baby dies, they are responsible for that death in the sight of man and God. Be firm, and do your duty.

But our responsibility must not cease there. We must show the woman what to eat, to make her milk nutritious and give her good health. And what is the next thing? There are some babies that have been artificially fed before they have come under our sphere of influence. At least, I trust that this is generally the case; and that it is not our responsibility. We know that statistics show that a great number of these artificially fed infants are going to be sick, when March, April and May comes. What are you going to do about that? I feel that if you put that child on one feeding of lactic-acid milk each day, beginning as soon as the weather begins to become warm, you can obviate to a tremendous extent the amount of sickness. But we must be perfectly sure that the women will not believe in the efficiency of this treatment to the extent of making all the feedings of lactic-acid milk. Tell them what the other feedings should be, but make that one the important feeding.

Dr. James Buren Sidbury, Wilmington: As Dr. Crouch brought out in his paper this morning, the one factor in infant mortality is congenital debility. Therefore, we ask ourselves, what is congenital

debility? It is a condition not associated with errors in hygiene or dietitics, but pertaining to a condition that the mother has had before or during birth. Seventy-five per cent of all the babies that die in the first month of life, die because of congenital diseases. Forty-two per cent of all babies that are born, die before they are one month of age, and seventy-five per cent of that number die of congenital diseases. Therefore, if we expect to reduce infant mortality, our main effort must be directed to the elimination of this one factor, congenital diseases. How shall we do it?

I am gratified to know that the North Carolina Health Officers' Association, at its sessions yesterday, took some definite action as to how this should be reduced in North Carolina; and if I may take the privilege of repeating it, the plan is that every county and city in the State shall have a pre-natal clinic, with nurses and a doctor, who shall follow every mother who is pregnant, through her delivery and her puerperium, until discharged in a condition to bear another child. That is the only way in which a pre-natal clinic can be of absolute use. It must not stop with the birth of the child, but must put the mother in a condition to be a mother again, before it can consider its work done.

The ideal plan is to have a baby health station in each county, where education may be directed, and every mother who becomes pregnant may receive instructions as to how to take care of herself, and how to take eare of the baby in the first month, and how the run-around shall be taken care of after the baby comes, which is a great factor. The pre-school-age child and the infant constitute the main child mortality of the United States. In the registration area of the United States, one hundred and one out of every thousand children die each year; and that mortality is made up, in greatest part, of children under one month. So if we expect to do anything to lower the mortality of infants, we must forward the idea that was born in the North Carolina Health Officer's Association yesterday, that each county assist in organizing a pre-natal clinic, which is the only way to materially lower the infant mortality death rate in our State.

Dr. Root: Dr. Crouch's paper brings out the fact that there are about three thousand babies under 2 years of age that die in North Carolina every year from diarrheal diseases. North Carolina stands, and has stood for years, near the very top of all the States in this matter of high infant mortality. In seeking measures whereby this might be reduced, we must consider the predisposing causes and re-

move them, if possible. The most important of these is the state of health of the child. How can we keep the baby physically fit?

The most important factor by far, in this, is what Dr. Weston said: The baby should be nursed by its mother through the first year of its life. We see far too many babies weaned because they have loose stools, vomiting, and failure to gain weight, but by the institution of simple measures, such as increasing the interval between nursings, diluting the breast milk with lime water, or other simple diluents, most of these troubles can be corrected. Then too many babies have to be weaned because their mothers' breast no longer functions. How are we going to get around that? I do not believe that the profession, and I know the laity does not realize the importance of the means by which breast milk can be maintained. This depends upon stimulation of the breast by the nursing baby at definite regular periods and thoroughly emptying the breast. Every nursing mother ought to be taught not only to have her baby nurse the breast as dry as possible, but also to empty the breast more completely by the Sedwick method immediately after each breast nursing. The breast should be stripped to more completely empty them. If we would take the trouble and time to teach every mother who is nursing her baby this, then unquestionably the breast milk would be maintained for a very much greater length of time.

When the baby fails to gain properly, then complementary feedings given immediately after the breast, but never supplementary feedings, that is, alternate bottle and breast feedings, should be given. In the latter case the breast would only be stimulated every 6 or 8 hours.

Dr. H. H. Harrison, Asheville: Dr. Sidbury's figures should make us all think. So far as lowering the infant mortality is concerned, *there* is where most can be done. If I remember rightly, Dr. Sidbury said forty-two per cent of our babies in North Carolina die before they are one year old. That is appalling to think of. Another thing he said was that seventy-five per cent of that forty-two per cent died of congenital diseases, forty-two per cent during the first month. I suppose congenital disease means weakness and prematurity, and similar conditions. That is where a lot of hard work and thinking ought to be put in, and I guess the greatest remedy for that would be pre-natal care. That is indeed a thing that we ought to work on, obstetricians and pediatrists and general practitioners.

TUBERCULOSIS IN INFANCY

H. H. Harrison, M. D., Asheville

I realize the commonplaceness of my subject, nor do I claim to offer anything new or original, or to cover it. But, having run into several cases lately, the importance of bearing it constantly in mind as a possibility in many conditions of infancy has impressed me.

To begin at the beginning, we know that it is almost never congenital, but that every infant has a very high grade susceptibility. The probabilities are that no considerable immunity is conferred on the child either through the placenta or through the breast milk, though on this last I have been able to find no authoritive statement. On the contrary if the mother has open T. B. the infant is almost sure to die with it, unless isolated from her immediately after birth. The statement has been made by Dr. Dunn of Boston, that in infancy it is as infectious as scarlet fever. It seems to me that it might easily be more so, for the infant is comparatively immune to scarlet fever. At any rate it is a wise and safe conclusion that the infant who is exposed for any length of time to an open case acquires the disease. 90% of these under one year will show symptoms of activity within a period of months, in the second year they are slightly less susceptible, but if we consider all these as being active we will be right in the large majority of instances.

We learn from some of the large clinics that it's rank as a cause of death is high, the alimentary diseases and acute infections alone standing ahead of it in infancy after the first month.

This fact comes not from the ward but from the autopsy room, where even with the elect diagnosis has to be changed once in awhile, and in something like 30% it is present when death is due primarily to another cause. In a large series of necropsies in infancy 23% under one year were positive for T. B., under two years 40% were positive. These figures are from Hamberger of Leipsig. Dr. Dunn of Boston gives 20% of 128 necropsies under two years as positive. These are all from a city population and may be slightly higher than the general average. There is certainly a greater incidence in Europe than in America, and of course it varies a good deal with different localities.

I do not think much T. B. is contracted except by actual contact with active cases, and I am one that believes that in the great majority of cases it is implanted in childhood, and if we bear in mind the old established fact that every infant is highly susceptible, we may contribute a great deal to lowering the death rate. At the same time I

believe that the child, but not the infant, who gets it but who does not get much activity, and this I believe is a question of dosage rather than of resistence, is a much more fortunate child than one who does not get it until later on in life. For I think the slowly diminishing death rate of T. B. is due to an increasing prevalence of it and the consequent immunity more than to preventive measures or better methods of treatment, though I would not in the least depreciate the value of these. How better can we explain it when we remember the fact that the incidence of tuberculosis is on the increase.

During infancy all tuberculosis is *active*, for as we have seen there seems to be little protection from the mother and no active immunity is present to help fight off the invasion.

As to pathogenesis: Opie states very confidently, "We have reached a satisfactory understanding of these matters." It has been amply demonstrated that at least in this country the infant in the great majority of cases gets T. B. just as the adult does, from association with active cases and through the respiratory tract. Opie and Dunn of this country, Hamberger and Ghon of Europe, and others have made rather exhaustive studies of this and all agree, finding the lungs and bronchial glands far more often infected than any other part, and in the large majority of cases they give evidence of being the *oldest* lesions. Ghon studied more closely the lungs, making thin sections of the entire substance and going over these with bare fingers he was able to find the locus of first implantation in practically every case. One of our own investigators finds that by a radiograph of the lungs after being removed from the body gives the same results—and in every case when the bronchial glands are affected the lungs show more or less evidence of trouble. In 184 autopsies by Wollstein and Spence on tuberculous children, five only showed lungs not involved, and seven only showed bronchial glands not involved, hence, I think we can conclude that this is the route by which the infant becomes infected in something like 95%. Bovine type is rare in America and is most commonly found in the cervical nodes or abdomen. It was the organism in 9 of a series of 362 cases.

Lymphatic tissue is by far the most vulnerable part of the infant, next the serous surfaces, (which I believe pathologists say are really lymph spaces) and next the lungs. Most writers speak of the infected lymph nodes draining from the primary implantation as a part of the initial lesion. The spot of the lung more often becomes quiescent, while in the lymph gland it smoulders, terminating in resolution, caseation, fibrosis or abscess, just as we have observed the cervical glands to do except in the infant progress is much faster, glands breaking

down in weeks rather than months. The secondary lesions depend on whether the infection dissiminates by the lymphatics, the blood stream, by bronchus or by contiguity. If by the blood stream we have a general miliary, and the predominating picture in this case is usually tuberculous meningitis, or if into a pulmonary artery we have miliary of the lungs. If by a bronchus a tuberculous bronchio pneumonia, or it may spread by contiguity often along an interlobar fissure, or the spot of primary implantation in the lung may develop and give the appearance of lobar pneumonia or may caseate and form cavity.

When the initial lesion is in the gut and messenteric gland we may also get dissemination by blood, lymphatics or contiguity.

Prognosis is absolutely hopeless *only* in meningitis and in general miliary. But even in the primary stage it is not good, but grows better constantly with time.

As to diagnosis; to go into that of all the possible secondary lesions would make the paper entirely too tiresome. The *mode* of *onset* in *all* tuberculous lesions is usually worth a great deal. Meningitis and broncho-pneumonia are by far the most common in infancy, and if we but bear tuberculosis in *mind*, proof for or against it may usually be had. In meningitis the diagnosis is usually correctly made, the different forms, namely spastic and flaccid, are to be remembered for they are very definite: Apathy, loss of weight, vomiting, constipation, stupor, convulsions, rigid neck, strabismus, paralysis, usually in the order mentioned, and lumbar puncture findings usually make a diagnosis easy, although syphilis, secondary and poliencephalitis should not be lost sight of.

In infancy secondary lesions of the chest are next in frequency it being usually a broncho-pneumonia, and I dare say there are few diseases that are more often misdiagnosticated. It is true that the mistake is not such a grave one for treatment does not promise a great deal. When an insidious bronchitis hangs on, say two weeks, that is *progressive*, get busy and prove that it is not T. B. History of exposure, D'Espine, von Pirquet, x-ray of chest, quickened pulse, fine constant rales around the nipple or anterior axillary fold, and repeated sputum examinations will usually be sufficient. But so-called peanut bronchitis, pulmonary abscess, low grade broncho-pneumonia, delayed resolution, empyema with adhesions, and a condition following influenza are to be thought of.

An interesting point on this subject to me is the large prevalence of cases showing secondary symptoms in the late winter or early spring in the two or three years just following infancy, showing that at this period the child might get by alright if it can be shielded from

certain conditions that obtain at this time, which probably are: the deprivation of fresh air through the winter, the over-heated house, a greatly reduced vitamin content in the winter foods, and, probably the most important,—the respiratory infections of winter.

But to get back to the infant: How are we to make a diagnosis during the *primary stage,* that is, before it spreads from the place of implantation or adjacent lymph nodes, and at a time when we can probably, almost surely, do some good? It is up to us to do it if we are to advance our science. We must bear these incurable conditions constantly in mind, and when there is a possibility of their presence, "Seek Dilligently." We can usually get pretty definite information if we will but take the trouble. The von Pirquet test if positive, is absolute evidence except just following measles. If negative, it should be repeated, and if the child is very atrophic or anemic it may continue to be negative until the general condition is improved. It has been found in most cases in which we are not sure of the reading that in reality it should be read positive. D'Espine and spinal dullness has been found to be positive in over half the cases that come to autopsy. This sign must be elicited at or below the 3d dorsal vertebra to be of value. Some of the acute respiratory infections may give enlargement of the bronchial glands and this should be borne in mind in making examination. But it is *rare* that they are large enough or numerous enough to cause a positive D'Espine. They do not persist like tuberculous glands, and if they do can in most cases be differentiated by x-ray, which is the most dependable diagnostic test after von Pirquet. By a trained Roentgenologist, one who has had much experience in just this sort of work, positive evidence can be gotten in something like 75% of tuberculous infants in this country and 20% of the remaining 25 will show suspicious markings according to Dunn if taken not too soon after infection. For it must be remembered that a dense fibrosis of a gland, caseation or calcification is necessary to cast a shadow, so a negative plate does not always exclude T. B. There may also be at this time anemia, failure to gain, difficult feeding, slight elevation of temperature, and some of these cases merge gradually into marasmus without ever having fever or cough. But most often there are no symptoms at all.

In some few cases pressure symptoms of the enlarged glands may be the first indications. It is to be recalled that the structures that may be encroached on and thus cause symptoms are the pneumogastric, recurrent laryngeal nerves, superior vena cava, trachia or bronchi, and the symptoms that would follow may be easily figured out. This form of trouble is commonest after the period of infancy.

As to treatment: In the secondary stage there is little that promises much, but to make the patient as comfortable as possible for the proper time for treatment is past. In the primary stage we can be much more optimistic. The first thing to do is to get the co-operation of the parents, explain to them the situation and the mother will more than assist you. These children should be kept in the very best physical condition. Correct feeding takes on a tripled importance, with fats, protein and vitamins to the limit of absolute safety. The child should be kept in fresh air always and out of doors all the time except in winter months, should be shielded absolutely from any possible exposure to infections, especially those of the respiratory tract, and lastly, I believe in *tuberculin* we have a remedy, not a specific, that should always be given at this stage of the disease providing the child is in a fair condition of nutrition, but given with the *greatest care*. It is not a cure, but simply a stimulant to the curative effort of the body. When given properly I think it capable of doing much good, but *weight curve, temperature, pulse* and the *site of injection* should be closely watched. The unpopularity in the use of tuberculin is probably due to the difficulty in determining the appropriate dose which always requires time and the utmost pains. There seems no way to arrive at the therapeutic dose from the clinical findings, but only by closely watching the patient while cautiously increasing the amount.

I believe the time is not far distant when we shall understand how to immunize or vaccinate infants and children against T. B. as we do diphtheria and typhoid. It is an established fact that the wave of T. B. mortality is on the down curve, while the insidence is increasing. This means that getting a small number of tubercle bacilli in our system is to be regarded as a "*friendly act*," but how many, when, or how often is it good to have them—I trust some day we shall know.

DISCUSSION

Dr. James Buren Sidbury, Wilmington: Dr. Bartlett of the New York Babies' Hospital, has written an article in the Bulletin of the New York Health Board, which I think will help all of us to read. I have not read it, but I heard him discuss the subject. He takes up the point of the prognosis in the case of children from under six months or a year to two and three years who show a positive v. Pirquet test, and gives his opinion as to how long these children can be expected to live. So far as I know, that has not been taken up before, and I look forward with pleasure to reading that article. I think it would be well for all of you to send for a copy of it (I believe it is

published in a State Bulletin) and get his figures; because what he says is based on good hard facts and observations that he has made. I think it would enlighten us on the subject of Dr. Harrison's paper today.

Dr. Root: Is there any further discussion? If not, I will ask Dr. Harrison to close the discussion on his paper.

Dr. H. H. Harrison: I wrote that paper because I think that most of us forget *tuberculosis* very often, in making a routine examination of a baby. That is something that we ought to bear in mind; and I think we can save some babies that we are losing. In the primary stage, before the disease gets away from the point of implantation, if we know it and tell the mother, she can be careful and keep the baby up to the top notch in the way of health; and I think we have proved that a great deal can be done in that way. I believe we lose many babies from tuberculosis that no one finds out about. It is found out only in those centers where a great many autopsies are done.

Dr. Faison: I move that the paper of Dr. John R. Ashe, of Charlotte, be read by title. He expected to be here, but has been prevented by pressure of work. I move that his paper be read by title and printed in the Transactions. The title of the paper is, "A Plea for the More General Use of Toxin Antitoxin."

I have become convinced that toxin antitoxin will eradicate diphtheria, and I want to offer a resolution that an appeal be made to the Board of Health to have it made at Raleigh and given free to the doctors for use among our people. As its effects last for four years and a half or more, if it is given to children under eighteen months of age, they will be protected till after they have reached the age of five years. I am going to introduce such a resolution, so that it may be used freely.

Dr. Root: Would you mind bringing this up later? The Chairman has a paper to read.

SOME MODERN PRACTICES IN PEDIATRICS

Aldert Smedes Root, M. D.

Intravenous treatment. Intravenous treatment in infancy is indicated far more frequently than in adult life. It is at this early age that we encounter hemorrhagic disease of the new-born, those infants dehydrated through diarrhœal diseases and malnutrition and grave cases of acidosis.

Intravenous transfusions of blood and injections of dextrose, soda or both together, and saline have saved many lives since intravenous medication has been found to be practical.

Before 1915, when Helmholz called attention to the accessibility of the superior longitudinal sinus, intravenous treatment was seldom resorted to, owing to the small superficial veins in a young infant, and hence the difficulty of entering them with a needle, the necessity of dissecting out such a vein and other difficulties.

The whole subject is made so simple by introducing the desired fluids through the anterior fontanelle into the sinus that with experience, the operation can be easily performed by the careful physician.

It is of the utmost importance that the fluids used should be made from freshly distilled water and the solutions of dextrose or normal salt thoroughly sterilized by boiling or sterilized in an autoclave. It should be remembered that solutions of sodium bicarbonate should not be boiled or autoclaved, as the bicarbonate is converted by heat into the carbonate, which is highly irritant.

The sinus in question passes upward and backward in the midline of the frontal bone under the anterior fontanelle and beneath the sagittal suture lying between the two parietal bones, then under the midline of the occipital bone to empty into either the right lateral sinus or torcular herophili. It is largest just posterior to the posterior angle of the anterior fontanelle, and it is here that it is easiest to enter.

Various needles have been devised for this purpose, of which the Goldbloom needle is probably the most satisfactory. It is, however, not necessary to use any of these for an ordinary No. 21 hyperdermic needle will suffice. Not more than 1/60 of body weight of fluid should be introduced at one time.

Aside from sinus injections and transfusions, obtaining specimens of blood for the Wasserman test, blood cultures, etc. is greatly facilitated by withdrawing the blood from the sinus by means of an ordinary hypodermic syringe. This can be done within a few seconds time and with much less pain and inconvenience than incising a finger or ear.

It is a practice in some hospitals to give salvarsan by this method. This practice is only mentioned to be condemned since this drug is so toxic that in case the sinus were transfixed, there would probably be a resultant necrosis of the brain.

Active immunization against diphtheria. The highest art in medicine is preventive medicine and in the use of toxine-antitoxine in those who are either susceptible or likely to become so, whereby an

active immunity is established, we have an agent for prophylactic treatment equally as valuable as smallpox and typhoid vaccines.

In the light of the work of Park, Zingher and others upon the subject, it seems strange that a fuller understanding of the value, and hence more general application of active immunization against diphtheria is not extant.

It is a fact, but nevertheless true, that in spite of the use of diphtheria antitoxine, there is an annual death rate of about 23,500 from this disease in the United States, almost equivalent to the combined deaths from scarlet fever and measles.

Unfortunately neither the disease itself nor antitoxine used so frequently as a prophylactic agent in those who have been exposed to active cases, protects the individual for any great length of time.

Through the agency of the Schick test, those individuals who are susceptible to diphtheria can be readily determined.

These should be rendered immune by the use of toxine-antitoxine to be discussed later.

The Schick test is applied in the following manner: The flexor surface of the forearm is selected as the site of preference, the skin is sponged with an antiseptic solution and dried, a measured amount of diphtheria toxine diluted in normal salt solution (2 c. c. of a 1/50 M.L.D. for a 250 Gramme Guinea pig) is injected intradermally by means of a tubercular syringe and a fine platinum-iridium needle. The injection should be made into the skin and one should see the eye of the needle through the superficial layer of the skin before pressing the plunger.

When properly executed a wheal like elevation is seen with pits corresponding to the hair follicles. The test is positive, if at the end of 72 hours there is a circumscribed area of redness and slight infiltration which measures from ½ to 1 inch in diameter. This persists for 4 to 5 days then begins to fade leaving a light brown pigmented scaling area.

A positive reaction thus described, indicating that the individual is susceptible, is due to the fact that there are not sufficient antibodies in the blood serum to neutralize the measured diphtheria toxine introduced into the skin. A negative reaction, shown by the skins remaining normal at the end of 72 hours at the site of injection, indicates that the individual is not susceptible to diphtheria, as he has sufficient antibodies in his blood serum to protect him. At times a pseudo-reaction occurs, and is to be distinguished from a true reaction in that it appears earlier, is more infiltrated and less circumscribed, and disappears in 36 to 48 hours and does not scale.

In those individuals tested and found to be non-immune, an active immunity can be established by the use of toxine-antitoxine. This can be procured from the New York Department of Health at a nominal cost, or from some of the commercial laboratories. Three injections of 1 c. c. each for children over a year of age or 0.5 c. c. under a year are made a week apart. The injection is made by means of an ordinary hypodermic needle under the skin of the shoulder or at the angle of the scapula. There is usually a mild local and constitutional reaction, not nearly so marked as is seen when typhoid vaccines are given.

Zingher[2] in carrying on this work of actively immunizing with toxine-antitoxine for a period of about 4 years have shown by re-Schicking those who have received 3 doses of toxine-antoxine, that 95 to 100% of them still remain immune to diphtheria. Immunity is not immediate but is usually established within 2 months from the time of the last dose of toxine-antitoxine.

Both the Schick test and morbidity records have shown that the age incidence at which children are most susceptible is between 1 and 5 years. After this, natural immunity develops in proportion to the age, so that when adult life is reached between 90 and 95% of individuals are immune. Most infants have an immunity acquired from the mother up to 6 months of age. In order to stamp diphtheria out as completely as is smallpox today, we have but to follow these measures: infants between 6 months and 2 years of age should be actively immunized against diphtheria regardless of the Schick test. Children between 2 and 5 years more especially, and those up to the age of 15 years should have their susceptibility determined by the Schick test and toxine-antitoxine administered to the non-immunes. This would include all children in the public schools, and it should be a part of the public health work in every community to see to it that this work is carried on in the schools.

Treatment of early intra-cranial birth hemorrhage. Statistics resulting from post-mortem examinations of infants dying after the first few days of life, show that in about 50% of cases death was due to cerebral hemorrhage. It is therefore a much more common cause of death than we realize. The bleeding may originate from the dura, pia or arachnoid membranes or from the vessels within the brain tissue. Seitz[3] believes that such hemorrhages originate from, (1) rupture of the longitudinal sinus or veins emptying into it with blood collecting over the cerebrum. (2) rupture of the transverse sinus or tearing of the tentorium and release of blood over the cerebellum. (3) rupture of vessles of the choroid plexus with accumulation of blood in

the ventricles. There is a history usually of a long difficult labor, precipitate labor, or the use of forceps, or the injudicious use of pitutitary extract. It not infrequently occurs in premature infants owing to the fragility of the blood vessels. It may happen where labor has pursued a perfectly normal and uneventful course. It is more frequently the first born child who suffers. Providentially, a majority of those afflicted die in the early weeks of infancy. Those who survive and have received no treatment grow up to be mental invalids in one way or another, either imbeciles, idiots, spastic paralytics, epileptics, or with other less manifest mental abnormalities. Many cases suffering from intra-cranial birth hemorrhage present absolutely no signs by means of which an early diagnosis may be made, and the condition is only recognized when the baby at the age of 7 to 10 months is found unable to perform the acts which should be accomplished at this time. On the other hand it is these early cases which offer us the opportunity for complete relieving them.

The symptoms of intra-cranial hemorrhage are: convulsions after birth or muscular tremors, cyanosis, stupor, positive Kerning's sign, spastic condition of the extremities, nystagmus or strabismus, bulging fontanelle, slow or irregular pulse, irregular or Cheynne-Stokes breathing, pupils contracted or unequal or non-responsive to light. The infant may appear entirely normal for 2 or 3 days and then one or many of the symptoms make their appearance. A tentative diagnosis is strengthened if the mother was a primipari, if labor was difficult, if delivery was instrumental. Should the physician or obstetrician suspect the condition, then a lumber puncture should be done and the blood which originated from the injury, withdrawn from the spinal canal. This should be repeated on several successive days until the cerebro-spinal fluid is clear, from 5 to 10 c. c. of bloody fluid being removed each day. A bloody cerebro-spinal fluid may mean a contaminated puncture but if the fluid is equally as bloody at the end as at the beginning of the flow, or if the blood is greatly in excess of the amount seen in a contaminated puncture, then we can assume that there was free blood in the spinal canal.

It must not be supposed that all cases of early intra-cranial hemorrhage surviving, are susceptible of being cured by this method, for if the hemorrhage is above the tentorium the blood cannot be withdrawn by lumber puncture, but so large a number are sub-tentorial that we are more than justified in the presence of symptoms even suggestive of this condition to perform this simple operation. Rodda[4] has shown that there is a prolongation of coagulation and bleeding times in infants afflicted in this way, and advises in all cases the subcutaneous

administration of whole blood. Dr. J. B. Sidbury[5] of Wilmington, N. C., has contributed a marked advance in the treatment of these conditions by determining the pressure of the cerebro-spinal fluid by the spinal mercurial manometer and performing daily lumber punctures and withdrawing bloody fluid until the pressure does not exceed 10 m.m. of mercury. The normal cerebro-spinal pressure is 2 to 5 m.m.

Dr. Wm. Sharpe[6] of New York, in cases showing a pressure of over 15 m.m. having bulging fontanelles and positive opthalmoscopic findings recommends a subtemporal decompression and drainage. Of the four cases which have come under my observation within a week after birth presenting unmistakable evidences of intra-cranial hemorrhage and upon whom lumbar puncture treatment was performed, one in a critical condition when first seen died that night, the result in the case of the second is still in doubt, while in the case of the third and fourth there was complete recovery.

It may be of interest to very briefly report these two cases:

Case 1.—Baby H., son of prominent banker of this city, was born after a difficult dry labor. The baby was a full term infant weighing 10½ pounds and the presentation was a vertex one. Respiration was established after 5 to 10 minutes, during which time artificial respiration and hot and cold plunges were resorted to. During 3 hours following birth, breathing was intermittent, requiring artificial respiration at intervals. He cried all night and on the following morning there was noticed convulsive twitchings of the right arm and leg. These occured at the slightest external stimulation, viz: lifting him out of bed, jarring the crib, etc. His head was constantly held in opisthotonus. The physician in attendance gave orders for absolute quiet and for feedings to be given by medicine dropper and 2 grains of sodium bromide every 3 hours. He was seen in consultation on the afternoon of the day following his birth. At physical examination he showed an internal squint of both eyes, weakness of the muscles of the right side of the face, stiff neck, postive Kerning's sign, markedly increased patella reflex on the right side, and toes of the right foot held in flexion. Upon the slightest external stimulus the convulsive twitchings would occur and in the process of physical examination the baby had a generalized convulsion lasting several minutes.

Lumber puncture was performed and 3 c.c. of pure blood withdrawn. The blood, clotting within the needle, stopped the flow, so a larger size was inserted and another c.c. of blood withdrawn. The baby slept quietly all night, the spasmodic tremors having practically ceased. He nursed strongly and appeared to be a normal infant on the day following the withdrawal of blood. A lumbar puncture attempted on the second day resulted in a dry tap. No further effort was made to enter the spinal canal as the general condition of the baby was excellent and the nervous symptoms had entirely cleared up.

I have seen this baby, who is now 12 months old, a number of times and he is normal mentally and physically in every way. There is not the slightest doubt in my mind but that this child, had he lived, would have been mentally defective had not this simple operation been performed.

Case 2.—Baby B. was seen two days after birth, having been referred by the family physician as a probable case of cerebral hemorrhage. Delivery was accomplished by the use of high forceps due to a contracted pelvis in a primipara. The child was born at term and weighed eight pounds. There was little difficulty in resuscitation. A large cephal-hematoma was noticed on the left parietal region and a complete left facial paralysis correctly presumed to be due to trauma from the forceps blade. The baby cried almost incessantly during the night and on the following afternoon had a generalized convulsion lasting for about a minute. Convulsions then occured at intervals of ten minutes to half an hour, becoming somewhat modified by the use of sodium bromide given at three hour intervals. Physical examination showed a well formed infant having a large cephal-hematoma over the left parietal region, an abrasion from forceps behind and below the left ear and left facial paralysis.

The fontanelle seemed bulging but this observation was negatived by trauma of the scalp. Right patella reflex hyperactive, left not obtained. Pupils negative. Temperature 100, Pulse 140, Respiraton 60. While undergoing physical examination there was noticed spasmodic twitchings of the right side, of the face, the fingers, arm and leg on the rightside. Kerning's sign was positive, and neck somewhat rigid.

Lumbar puncture was performed, the first c.c. recovered was almost pure blood clotting in the needle. A larger needle was introduced and 5 c.c. of blood-red fluid was obtained in the second tube, and 6½ c.c. in the third tube, this being less bloody but still highly colored. The baby slept all night and nursed well. Lumbar puncture of the following day resulted in a dry tap. She has had no convulsions since withdrawing blood from the spinal canal a month ago, and seems normal in every way except for the facial paralysis due to trauma, which is gradually clearing up.

Proteid sensitization. For a number of years it has been a recognized fact that individuals may suffer from asthma, urticaria or eczema due to the fact that they are sensitive to certain foreign proteids. The same disease may be caused by different proteids in different individuals and not infrequently the offending article of diet may be discovered by cutaneous tests, to be discussed.

When this article of diet is removed there results a recovery of the sufferer. While this field of work may still be considered in its experimental stage, the results obtained justify an attempt to remove the cause, especially in those children whom all of us so frequently see suffering from frequent recurrent attacks of asthmatic bronchitis and who hardly get back into fair physical condition before another attack supervenes and this in spite of the most careful hygiene, the removal of tonsils and adenoids, the use of antogenous vaccines et cetera.

The technique of the cutaneous tests for proteid sensitization is as follows: The flexor surface of the forearm is cleaned with alcohol and ether and dried, and scratches made about an inch and a half apart. These should penetrate only the outer layer of the skin and

there should be no blood visible. The upper scratch is used as a control. A drop of n/10 sodium hydroxide is placed over each scarification and a small amount of proteid from the article of diet to be tested against, placed in the sodium hydroxide and gently stirred with the point of the scarifier until it has dissolved. A positive reaction is denoted by a raised urticarial wheal surrounded by an area of redness of the skin, irregular in outline and from 0.6 to 2 c.m. in diameter, and which becomes manifested within 30 minutes time.

The most frequent proteids to which children are sensitive are those from oatmeal, potato, egg, peas, rice, cæsin, beef, and chicken. As these articles are among those forming the chief dietary of a child, no one of these should be withdrawn upon the assumption that it is the causative factor, unless the test against it is positive. These foreign proteids may be obtained from the Arlington Chemical Co., Yonkers, N. Y.

The treatment of focal hemorrhagic encephalitis by transfusion. The writer[7] realizes full well that deductions and conclusions cannot be drawn from one of even few cases, but so striking was the result obtained from transfusing a 14 months old baby who had this disease, that I feel justified in calling the attention of the medical profession to it. The case was reported in detail in the September, 1920, number of the Archives of Pediatrics. This paper was submitted for publication in April, 1919, at which time it was thought that the baby, while having recovered physically, would be mentally defective. I have seen the child within the past few weeks and am glad to report that both mentally and physically, she is entirely normal.

Two cases in other towns were transfused by their physicians at my suggestion, with marked improvement resulting. These will be reported in a subsequent paper. One case was transfused by the writer in March, 1921. The transfusion in this case had only a temporary good effect, the child ultimately succumbing to the disease.

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DISCUSSION

Dr. I. W. Faison, Charlotte: This comes back to Dr. Ashe's paper, "A Plea for the More General Use of Toxin Antitoxin." You covered the ground, Dr. Root; so we will make the discussion on your paper, and not his.

I want to introduce a resolution, as follows:

RESOLVED, That it is the sense of the Section on Pediatrics of the Medical Society of the State of North Carolina that toxin antitoxin is a preventive of diphtheria and, under the best light obtainable, is an absolute eradicator of the disease; and that it should be made in the State Laboratory of Hygiene and furnished to physicians in 1 c.c. doses, as a safe and efficient remedy to be given to children from the age of six months to three years.

Dr. Root: Is there any second to the resolution of Dr. Faison? (It was seconded.)

Dr. Faison: This is what I want to do. I believe that every child six months of age, without exception, should be given toxin antitoxin —three doses of it, week apart, will immunize the baby for four years and a half. So far as we now know it has been proven to be a sound and safe procedure. The child will then be protected until six years old at least. After the age of five years, only a small proportion of children will take diphtheria. You can find out, if you wish, the susceptible children; but it is just as easy to give toxin antitoxin, and easier, than the Chick test. If you stick in a needle at all, you might as well stick it in up to the hub. It is the needle that the child is afraid of. I would give toxin antitoxin to every child under ten years of age. There is no harm in toxin antitoxin. If that is true (and from what has come before me, I believe it is), in ten years from date, we should have absolute freedom from diphtheria in North Carolina, and be freer from that disease than we are now from smallpox. With the position that our Board of Health takes on smallpox, with which I do not agree. We do not vaccinate for smallpox as we ought to. If every child who goes out of the hospital is vaccinated, you need not be afraid of smallpox. If he is then vaccinated again before he is fourteen, and again before he is twenty-five, he may sleep with all the smallpox patients in the known world, and will not have the disease. I believe that this toxin antitoxin will do the same thing in the case of diphtheria.

Dr. W. S. Rankin, Raleigh: I am not going to second that resolution, because I do not want it to come from the State Board of Health; but I am anxious that the Society should pass this resolution in some form—whatever form you see fit to give it. I want to suggest, if Dr. Faison will accept the suggestion in the form of an amendment, that your Section appoint a committee to make a brief statement concerning the value of toxin antitoxin as the expression of the opinion of this Section on this subject, so that I can publish it in the Bulletin and send a multigraphed copy to every doctor in North Carolina. It should be expressed in language that laymen can understand. The technicalities should be cut out in drafting the resolution. Put it in the form of a statement to the profession and the public, and it can be sent to every doctor in North Carolina.

Dr. Faison: I will not accept *that* as an amendment to my resolution. I want it in two motions: The first, the one that I have made, to go to the Board of Health as that which we all want. Then we can pass the other, to be sent to the doctors and the public. I want mine sent to Dr. Rankin and the State Board of Health as to what we want.

Dr. Rankin: This Section proposes a public health policy, and accepts the responsibility and the credit for it; and, when the State Board of Health puts it into operation and anyone criticises it, we may say that the Medical Society of the State of North Carolina wants it.

Dr. F. H. Richardson: In seconding Dr. Faison's motion, I should like to stress this point that he brings out about dispensing with the Schick test. All of us children's men like to play with the Schick test. But you can not expect a man with a busy office practice to do a Schick on every child; it takes too much time and trouble. If you are going to make this diphtheria protection at all general, as vaccination is, you must boil down the details so that any one can do it. The Schick test is not always definitely positive or negative. There are some reactions that you are not sure of. The laity want to know either "Yes" or "No." I would strongly suggest that we do away with the Schick test, and all mention of it. I find that a great many doctors do the Schick test, and then do not go ahead and immunize. The Schick test alone does not do the child a particle of good. You have to have the immunization. I understand that at the Lying-In Hospital, every child that goes out is given the toxin antitoxin, not

because they find the babies giving a positive Schick at this early age, but because they have the babies under their control and can do it. I think that by simplifying the procedure, we can reach the laymen over the doctors' shoulders.

Dr. Leroy J. Butler, Winston-Salem: I was a resident in New York Foundling Hospital, New York City, from October, 1919, to October, 1920, and, on every admission, the Schick test was done. The positive cases were immunized with toxin antitoxin, and I never saw diphtheria develop, among 600 children, after being immunized with toxin antitoxin.

Upon being put to vote, the resolution was adopted as offered by Dr. Faison.

Dr. Root: There is a motion before us, which has been seconded, to appoint a committee of three. (The motion was voted on and carried.)

The following committee was appointed:

Dr. I. W. Faison, Charlotte.
Dr. H. H. Harrison, Asheville.
Dr. B. U. Brooks, Durham.

Dr. H. H. Harrison: I should like to ask Dr. Root whether he considers intra-cranial hemorrhage due to hemorrhagic disease in the new born or to trauma. What is the chief cause, would you say?

Dr. Root: I will reply to Dr. Harrison's question. I mentioned in my paper that Rodda had shown conclusively that in these cases there is prolonged bleeding. I think that both factors operate in these cases, trauma and the hemorrhagic disease of the new born; but I think that trauma has more to do with the bleeding than has the latter condition.

Dr. Harrison: Would you advise giving treatment for hemorrhagic disease?

Dr. Root: Of the four cases that I reported, I did not do so in any; but Rodda recommends the injection of whole blood, in addition to operative measures.

EYE, EAR, NOSE AND THROAT

Dr. H. H. Briggs, Chairman, Asheville

Dr. Henry L. Sloan, Charlotte: I was prompted to write this paper by the fact that I have had three cases of pituitary tumor in the last twelve months. I got interested in the subject and thought I would report on them.

THE EARLY DIAGNOSIS OF PITUITARY TUMOR FROM THE EYE FINDINGS

Henry L. Sloan, M. D., Charlotte, N. C.

Visual disturbances have been observed and recorded from the very first in studies of pituitary disorders. One of the very early observations on pituitary disease was made in the dead-house with the antemortem diagnosis of "amaurotic insanity."

Until about thirty years ago the pituitary body was considered a non-functioning cerebral appendage. Marie in 1889 connected it with acromegaly. Other investigators later added much light to our knowledge of the growth, the gross and minute anatomy of this gland. But it was not until 1910 that Harvey Cushing in his epochal work on the hypophysis cerebri gave us the modern conception of its physiological and clinical manifestations. It was he who also gave us the term dyspituitarism to include those conditions caused by perverted hypophyseal secretion. This, as is well known, is a clinical combination of hyperpituitarism and hypopituitarism with the limitations of acromegaly on the hyperside and Froelich's syndrome on the side of underactivity. The "hormonic signs" and the symptoms of these disorders are well known. "Dyspituitarism suggests in a mild way the phenomena of hibernation." The three most common symptoms are "a tendency to sleep, without previous lack; muscular inactivity, without loss of power; and deranged carbohydrate metabolism."

These dyspituitary disorders are of interest to us as oculists because of the fact that they are frequently caused by neoplasms of the pituitary body, which in turn produce visual disturbances only by local pressure on the optic nerves, tracks or chiasm. Frazier reminds us that the pathological deviations of the pituitary are not unlike those of the thyroid. "As with the thyroid, so with pituitary, the most common lesion is the adenoma, in both instances often with cystic developments." It is his estimate that 75 per cent of pituitary tumors

may be classified as adenomata. Malignant disease is rare, one hopeful feature of an otherwise serious situation. Ocular disturbances are present in 50 per cent of these cases according to Knapp.

It is not entirely correct to speak of the eye findings of early pituitary disease. For while in many cases "failure of vision" may be the only complaint of the patient, yet the eye findings are early only in that they many times make their appearance in advance of the "hormonic changes" by which pituitary disease makes known its onset. Cope, in a careful study of autopsy records and findings of reported cases at the operation table, says: "It seems certain that many cases with visual symptoms must have considerable intra-cranial extension of the growth." "I have searched the literature of pituitary operations fairly thoroughly," he continues, "and have not yet found a single case with optic symptoms in which verification at operation or autopsy was permitted, which did not show a large intracranial extension.

We conclude, therefore, that all pituitary tumors which come to operation for symptoms other than acromegaly have long before burst the bounds of the fossa." Frazier concurs in this and adds that eye symptoms could hardly be caused without extra-sellar extension. The extension is more often forward and upward.

Symptoms: The first symptoms that often lead to diagnosis of pituitary disease are not very striking. Headache—frontal and occipital and by many described as a rather typical bitemporal headache, is as a rule present and not severe. It is made worse by use of the eyes, and the eyeballs are described as "sore." Blurred vision of rather long duration is a common symptom. These appear to be no more than cases for refraction. However, glasses will not help them.

On further inquiry the patient may tell you that his vision failed first to one side—the latter true in two of my three cases. (The patient may appear a little drowsy.) You may also elicit a history of early menapause, loss of sexual desire, polydipsia, polyuria, and an excessive appetite often for sweets.

Of 32 cases of pituitary tumor reported by Benedict of the Mayo Clinic:

1. Lower visional acuity in one or both eyes was present in every case.

2. Lower visional acuity in one eye with 6/6 vision or better in the other in five.

In nearly all of his cases the onset of the visual disturbance was gradual. In one case visual disturbance was noted 19 years before coming to the clinic in one eye and four years in the other. In one

of my cases the trouble began fourteen years ago in one eye and nine years in the other; in a second, it ran back nine years in one eye and was just beginning in the other; in a third, ten years in one eye and one year in the other. Ocular palsies rarely present.

Ophthalmoscopic Examination: In the earlier cases you will see a slight pallor of the disc without loss of substance; the pallor is uniform, as a rule. Benedict has described it as a rather characteristic waxy, yellow discoloration of the disc, with loss of some of its fine vessells, but with no loss of substance. In optic atrophy the failure of vision and atrophy go hand in hand. The pallor in hypophysial diseases may be quite marked with hemianopsia and 20/20 vision, a very significant fact. In toxic neuritis the vision fails first. In pituitary disease the nerve is pale, but disc margins are well defined. The physiological cup and lamina cribrosa are normal. The optic nerve in these cases, according to Cushing and Walker, is in a state of physiological block and add "despite the so-called atrophic pallor of the disc in patients having visual defects resulting from lesions in the chiasmal regions. The histological examination of the nerves fails to show the expected degree of fibre degeneration unless the process has been of long duration."

The recuperative power of the nerves in such conditions is remarkable; useful vision may be restored after almost complete blindness has been present for months. It is claimed that pallor begins on the average about four months after onset of visual symptoms, and also that great improvement in vision can be expected after operation if vision has failed not longer than a year, in a few cases even longer. Choked disc is occasionally present.

Visual Field Changes: Bitemporal hemianopsia is very suggestive, almost pathognomonic of pituitary new growth, yet it is a rather late finding. (This condition has been reported in six cases of Tabes by Fuchs and very rarely in other conditions.) This is no more than we should expect in pituitary tumors from direct or indirect pressure on the chiasm, because of the nearness of the latter to the sella and its contained gland. However, in these conditions homonomous hemianopsia is not infrequent. de Schweinitz says: "Although it is true that homonomous hemianopsia due to an optic tract lesion, is less common than is bitemporal hemianopsia, I doubt if it is fair to say it is very rare in hypophyseal tumor."

In a report of 271 cases of pituitary disease by Cushing and Walker, 183 cases showed tumor manifestations and 148 showed field defects. Bitemporal hemianopsia was present in 47 cases. Homonomous hemianopsia is present in 22 cases. The remaining 79 showing field dis-

turbances were blind in one eye, so that the field defects could not positively be determined. They, therefore, find homonomous hemianopsia about half as common as the bitemporal form.

Cushing's classification in this series of cases includes tendancies to bitemporal defects, rather than the clear-cut text book hemianopsias. He lays special emphasis upon the character of the advance of these field defects as follows: "The primary defect usually involves the color boundaries alone in one upper temporal quadrant. This is followed by a more or less complete hemiachromitopsia possibly with a slant in the upper temporal form field, which gradually spreads downward until most of the temporal field is involved. In all of these cases the color fields are involved first, the form field later. The macular area is often spared for a long time, but finally it becomes implicated in turn first in its temporal half, finally the whole central area enters the blind field, and the nasal half in turn progressively shrinks away from the center. It is to be emphasized that rarely are the two eyes affected in equal degree, and also, that after operation, restoration occurs in reverse order." de Schweinitz and Halloway have further called attention to early field defects in pituitary growths in the form of scotomotous changes in and about the central field, which antedate the larger field defects often by months, later to terminate in various forms of temporal field defects. Nettleship also calls attention to central scotoma in hypophyseal tumor as an early symptom which goes on to temporal hemianopsia. A striking characteristic of these field changes is the great variability from day to day. de Kleijn notes that "if they are taken daily, henanopsia appears and disappears and may even pass into a concentric contraction." This was strikingly true in one of my cases.

Diagnosis: Diagnosis should not be made by the eye findings alone. X-ray will furnish great help—often show an abnormal sella with enlargement and the destruction of the clinoid processes. The neurologist's aid should be enlisted. In this connection it is interesting to note that in Cushing's clinic the Roentonologist pays no attention to sellar measurements, but makes his diagnosis from its relation to the general configuration of the skull.

REPORT OF CASES

Mr. S. P. S., age 52, white.

O. D. V. = 20/20.
O. S. V. = 20/30 — 3.

Patient was first seen March 15, 1920.

Complaint: Eyelids burn and sting. Eyes tire easily—and headaches.

H. P. I.—Patient says he has always been well and strong, having been sick but once with scarlet fever when a child. Says he has had headaches and pain

in his eyes for a number of years worse after reading. Left eye has troubled him for eight or nine years. His headaches are frontal and occipital in location. During this time his glasses have been changed many times without relief.

Refraction { O. D. V. Plus .25 Axis 15 = 20/20 plus 3.
O. S. V. Plus .37 Axis 120 = 20/30.

Patient soon returned with the same complaint. He said that vision was somewhat blurred with the left eye. He saw as through a pocket in a cloud and could not see well to his left side. With the left eye he wished to read the lines of the test chart backward. This suggested a field defect. Loss of red and green color sense was noted. No cause for a toxic amblyopia could be found. Many perimetric examinations were made up to August. Some of them showed temporal hemichromatopsia, left and later the form field was cut off in left temporal half. There were many variations. Later slight upper "temporal slants" were noticed in color fields of right eye. Slight uniform pallor of left optic disc. Examination of nose negative. Blood Wasserman negative. Patient never used tobacco or alcohol. X-ray showed excavation of the sella. Neurological examinations negative. Patient was sent to Dr. Hiram Woods and Dr. Dandy, who concurred in the diagnosis of pituitary neoplasm. Pupils slightly unequal and left reacts very sluggishly. Patient refused operation, as he was told that there was 15 per cent mortality operation on these cases. Observation was continued until early in Jan., 1921. Vision had changed to:

O. D. V. = 20/20.
O. S. V. = 20/200.

The defects in right visual field had become more pronounced. I took patient to Dr. Harvey Cushing, who confirmed our diagnosis. He did a sella decompression and removed part of a very firm adenoma. Improvement in vision of left eye has been steady.

May 26, 1921.—All headaches and symptoms of eye strain gone. Visual fields have improved but left is still far from normal.

O. D. V. = 20/20.
O. S. V. = 20/30 — 1.

Case 2.—Mrs. J. C. B., Age 35, Housewife—White.
O. D. V. = H. M. nasally.
O. S. V. = H. M. nasally.

C. C.—Failure of vision, slight headaches, pain in lower abdomen, polyuria, and polydypsia.

F. H.—Both parents living; father paralyzed, mother has rheumatism.

P. M. H.—Usual diseases of childhood—typhoid fever, (ten years ago) and had influenza.

S. H.—Married—one child, 10 years of age. Child said to have "kidney trouble." Child seems normal in growth and other ways. No miscarriages.

H. P. I.—Vision began to fail in right eye over ten years ago. Left vision failed during the last year. Could read newspaper until about one year ago. No pain or inflammation about eyes. Has always had headaches—not very severe—frontal and occipital in location. Pain in back and lower abdomen. Polyuria for eight years. Lips dry and she drinks a lot of water.

Menstrual History.—Menses began at 11 years of age. Regular four to six days until 16 years of age. Then began to have amenorrhea—missing for six months or more. Menses stopped at age of 32. Feet and legs always cold. Patient is rather sluggish. Pupils equal and react very sluggishly to light.

Ophthalmoscopic examination.—Uniform bilateral primary optic atrophy. Blood Wasserman negative, two tests by different men.

Roengenologist—Reports obliteration entirely of pituitary fossa.

Diagnosis:—Dyspituitarism. (Pituitary tumor.)

Case 3.—Mr. P. F. C., Age 66, Minister—White.

C. C.—Failure of vision

P. M. H.—Negative.

F. H.—Negative.

H. P. I.—Patient says he has always enjoyed splendid health.

Fourteen years ago had an attack of severe pain in right eye. There was no redness of eye. Lasted six weeks and left eye crossed. (Ext. squint right.) Vision began to fail after this. Four years later was examined by an oculist in Atlanta and told he had a cataract in this eye. First noticed that he could not see well to the right side. Nine or ten years ago noticed same thing in left eye.

O. D. V. = H. M. nasally.
O. S. V. = 1/200.

Pupils enlarged—equal and react sluggishly to light. Patient yawns between questions when history was taken. Sleeps almost upon sitting, and moves about very sluggishly.

Examination of Fundi:—Primary optic atrophy bilateral.

Fields:—Bitemporal heminaopsia.

X-ray:—"The sella turcica is very large with irregular outline and the posterior clinoid processes are entirely gone."

Diagnosis:—Dyspituitarism.

X-ray treatment has been continued to present time, June 1, 1921.

O. D. V. = H. M. nasally.
O. S. V. = 9/200.

These cases are illustrative of the quiet, almost insiduous onset of the results of pituitary tumor. Thyroid disease is certainly not rare. Cushing tells us that "hypophysial disorders are now recognized almost as often as those of the thyroid, and there is no reason to believe that one of these two glands is affected any oftener than the other." This being true it behooves us as ophthalmologists to keep in mind the ocular phenomena of pituitary struma, and see to it that these conditions do not escape our detection. The responsibility of diagnosis is in great measure on our shoulders. Operation is in the great majority of cases for improvement of vision; the latter is the criterion of a successful result. Careful charting of visual fields is our main stay; thereby we should add one more weapon to our armamentarium in the treatment of so-called primary optic atrophy.

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DISCUSSION

Dr. J. W. MacConnell, Davidson: I am not one of those capable of discussing the disorders of the pituitary body, but certainly this paper of Dr. Sloan's should be commended, because it is on a timely subject. He has worked these cases up well, one of them exhaustively, and he deserves great credit for so doing.

The mapping out of the color fields, of course, has been the chief guide in locating the trouble. Like Dr. Sloan, I am likewise surprised at Dr. Cushing's statement that disorders of the hypophysis are as frequent as disorders of the thyroid, and whether or not that be true, I question whether ocular manifestations of the pituitary trouble are so common. It is only when you have a growth of the gland sufficient

to cause pressure that you would have any real trouble. I mean that you could have a number of functional disorders due to hypo- or hyper- symptoms that would give trouble, but it is only when we have the pressure symptoms that we would have the trouble which Dr. Sloan mentioned.

He is to be commended for the preparation of this paper, because I know that the first patient of whom he spoke has been given a new lease on life, certainly on his business life, by the operation.

Dr. R. V. Brawley, Salisbury: Within the past year I have had two cases of pituitary involvement. The first was an ex-soldier, who began to develop eye symptoms soon after his discharge. In the beginning I did not think there was any question as to there being a pituitary tumor or some sort of growth. He had the constricted field, bitemporal, and it seemed, as Dr. Sloan has said, to vary on different days. This was a colored man, and I did not get to take his field as often as I should have. But it seemed to vary, and the nerve had that peculiar pallor of which Benedict spoke. Otherwise, I was unable to make anything out of the fundi. He passed from my care for some time and when he returned he had developed some few hemorrhages throughout the retina. Several weeks later there was a double optic neuritis. Post-mortem showed, however, not only pituitary involvement, but cysts of the cerebellum.

The other case was a boy about ten years old. The nerve in his case was pale but distinct from a regular optic atrophy. He was operated at Dr. Cushing's Clinic. Before the operation was done, atrophy had set in, and, while he is perfectly well, he will never recover his sight. Dr. Cushing, I believe, stated that if typical optic atrophy had set in there would, of course, be no recovery.

Dr. H. H. Briggs, Asheville, Chairman: I am very glad to hear Dr. Sloan quoting Dr. Cushing to the effect that hypophysial tumors are as frequent as thyroid tumors. It helps me to believe what I heard Dr. Cushing say last June that intra-cranial tumors were as frequent as abdominal tumors. He was speaking of tumors of the optic nerve.

I wish to report very briefly a case. I am sorry that I have not the exact date here. I gave the notes including the x-ray plates to the patient for use in consultation. It was a girl twelve years of age, who weighed 112 pounds. She applied for tonsillectomy at one of the tonsil clinics, but was not operated on because of her physical condition, there being some question of her taking ether at the clinic. Con-

sequently she was advised to consult Dr. Joseph Sevier, of Asheville, who made the general examination and referred her to me in September, 1919. Aside from the excessive weight, she had a divergent squint, which had developed in the past two years. The vision was 0.8 in the right and 0.6 in the left. The field of vision was contracted slightly in every part of the field, but especially in the temporal region. The x-ray plate (exhibited) shows the sella turcica greatly distorted by the hypophysial tumor. She was examined at Johns Hopkins and advised to have an operation, but the parents declined. She returned home, has taken a moderate amount of school work and has gradually improved in general health. Her vision has increased to practically normal and her weight is somewhat reduced. The field of vision has also improved, and all this spontaneously, without treatment.

Dr. Sloan, closing the discussion: I wish to thank the gentlemen for the discussion. I am sure that if you will be on the lookout for those cases not relieved by glasses you will pick up a pituitary tumor now and then.

Dr. Cushing does not use the color test, but the quantitative test, beginning with a large white test object and ending, in doubtful cases, with a test object of minute size. Dr. Cushing had any number of cases when I was up there, and is getting cases referred to him from all over the country. To see his clinic you would think that these cases are pretty common.

Dr. P. P. McCain, Sanatorium: Since I am not a throat specialist, I wish to make apology for presuming to talk to a group of experts in this line. I am only bold enough to do so because this method of removing tonsils is so little known, and because it is in your hands that the best results can be obtained from its use.

THE SAFE REMOVAL OF TONSILS BY THE DESICCATION METHOD WITH THE HIGH FREQUENCY CURRENT IN POOR SURGICAL RISKS, WITH ESPECIAL REFERENCE TO THE TUBERCULOUS

P. P. McCain, M. D., Sanatorium

The important role played by the diseased tonsil in the dissemination of infection is now generally recognized.

The beneficial results following the removal of diseased tonsils are also beyond question. The technique for their surgical removal has been perfected to a degree which makes the operation more than ordi-

narily safe when performed by a careful operator in otherwise healthy individuals. Even under the most favorable circumstances, however, owing to the inaccessibility of the field of operation and the impossibility of rendering it aseptic, complications at times occur, among the most serious being pulmonary abscess, secondary hemorrhage, pneumonia, embolism, and infection. But the advantages to be gained by the operation so far outweigh the dangers that an *otherwise healthy* patient need not hesitate to have his tonsils removed by surgical methods. There are certain conditions, however, which constitute either questionable or absolute contra-indications to a surgical operation of this importance either under local or general anesthesia, the most important of which are pulmonary, cardiac and renal diseases, the anemias, and hemophilia.

It is particularly with the tuberculous patient that this paper has to deal. The very nature of this disease makes it extremely necessary that every particle of the patient's vitality be conserved. The loss of blood during the operation, the mental strain and the marked soreness, preventing as it does the taking of food in sufficient quantities for several days, are necessary evils of the surgical operation which lower the vitality of the patient to a variable degree. On this account many patients have heretofore been deprived of the advantages to be gained from the operation.

Unfortunately, the tonsils of the tuberculous are equally if not more subject to the ordinary diseases, and in addition, are much more frequently than others the seat of latent tuberculosis. Rarely also we find in tuberculous patients active tuberculous ulcerations of the tonsil. In such cases, surgery offers the additional danger of causing a generalized tuberculosis. And yet, if such a tonsil is not removed it is only a short while until the patient becomes the victim of tuberculosis of the pharynx and of all the neighboring structures, which is the most to be dreaded of all the complications.

It was such a dilemma as this which occasioned our learning of the use of the high frequency current in the removal of tonsils. A recent graduate of one of the best medical colleges in Philadelphia, who had been a former patient of ours, had an exacerbation of his trouble while taking his interneship in one of the large hospitals in the same city. He returned to us with active symptoms, tubercle baccilli in his sputum and an ulcerated left tonsil, only the shell of which was left. We felt that surgery was contra-indicated, but thought there was a possibility of relief through cauterization, and sent him back to consult his professor of diseases of the nose and throat. After confirming the diagnosis of tuberculosis of the tonsil by removing a small section

for microscopical examination, the latter sent him to Dr. Wm. L Clark, of Philadelphia, who removed the tonsil by the desiccation method with the high frequency electric current. After two weeks he returned with no sign of any tuberculous process in his throat, his active symptoms disappeared, and at the end of two months he went on our staff and continued doing regular work with no return of symptoms.

This is the only method which is at all safe for the removal of ulcerated tuberculous tonsils, and it is not only safe but where the process is limited to the tonsils themselves, it can practically always effect a cure.

We secured a high frequency machine and for the past four years have been making use of the desiccation method with uniformly good results.

Oftentimes it is not necessary to remove a whole tonsil, for frequently the source of the trouble comes from the retained infected material in only a few of the crypts. This is most commonly true in the crypts opening into the supratonsillar fossa and at the base of the posterior pillar, where the tonsil is capped over by folds of mucous membrane which may hug so tightly as to close the mouths of the crypts. By the desiccation method it is a comparatively simple matter to destroy enough of the tonsil to establish free drainage of these crypts; and in case the morbid local and general processes do not subside following this, the remainder of the tonsil may be removed at a later date. This has the double advantage of conserving all healthy tonsillar tissue for any useful purpose it may serve and of causing the least possible inconvenience to the patient from the operation.

The only special equipment needed is a high frequency machine, a fulguration handle with suitable electrodes and a foot switch, all of which can be had with an outlay of about two hundred dollars or perhaps less. It is the mono-polar Oudin current which is employed. We use the little aluminum wire electrodes insulated with rubber tubing. The aluminum permits bending of the tip of the electrode to any desired angle so that any part of the tonsil may be reached. The foot switch is essential in order that the current may be turned off instantly when necesssary.

The destruction of the tissues is accomplished by sparks from the electrode which cause dehydration or desiccation. The tip of the electrode should be held in contact with the tonsil since any air space will prevent penetration. The current should not be strong enough to cauterize. The destruction may be carried to any depth desired,

and either one or both tonsils may be removed at one sitting. The best results however can be obtained by destroying the tissues to only a small depth at a sitting and allowing sufficient time between treatments for the destroyed tissues to come away. It usually requires two or three sittings, at intervals of three to seven days, to completely remove a tonsil. By following this procedure tuberculous patients have so little soreness following the operation that they do not have to miss a single meal, they are not confined to bed and they do not have any fever.

The operation is carried out with the patient sitting in a comfortable chair with a head rest. The only anesthetic needed is a topical application of an eight to ten per cent cocaine or novo caine solution. The reflexes are destroyed by an application of the solution to the pharynx and the neighboring structures. Several applications are made to the tonsils and a sufficient time is allowed for the drug to take effect, which is usually fifteen to twenty minutes. The tonsils are not very sensitive to pain, but the pillars, tongue and uvula are quite sensitive and great caution needs to be exercised to avoid touching them in applying the current. This was the source of error in the only two cases which we have had to suffer any degree of pain or to have more than a slight amount of secondary inflammation following the operation. The tongue is kept out of the way by using a rather large tongue depressor, which is held, after being placed in the desired position by the patient himself. This is not only a convenience to the operator but it has also a helpful psychological effect on the patient. At the first sitting a pillar retractor is usually not necessary, but after the more prominent portion of the tonsil is removed, it is necessary to retract the anterior pillar in order that the part of the tonsil lying behind it may be brought into view for removal. For this purpose an instrument should be used, the edges of which are smooth and rounded so that there will be a minimum amount of discomfort on traction.

Our experience has been limited to adults. Naturally the method is not applicable without a general anesthetic in young children. But it is my opinion that it could be used in a good many children of intelligence of seven or eight years or older. We have had occasion also to use it only in cases of tuberculosis. There is no reason, however, why it should not be used in any condition in which surgery is contra-indicated. The only drawback to the method is that it requires more time and patience.

Our experience in the thirty cases in which we have used the method coincides with that stated by Clark[1], when he says, "The desiccation

1. The American Journal of Electro-Therapeutics and Radiology, Sept., 1918.

may be depended upon to fulfill every requirement, viz.: sterilization, complete or partial removal of tonsils without surgical shock, hemorrhage, or great immediate or after discomfort to the patient and with no resulting contracted cicatrix or danger of impairment of phonation."

Dr. Briggs, Chairman: Gentlemen, this paper is open for discussion. Let us confine ourselves, however, to the subject.

DISCUSSION

Dr. R. V. Brawley, Salisbury: I would like to ask the Doctor if he is ever troubled with secondary hemorrhages.

Dr. M. L. Matthews, Sanford: Some two or three years ago, when I was at the Sanatorium, Dr. McCain gave me, I suppose, the history of this patient whom he had working with him, and about the removal of the tonsil by the high frequency current. It impressed me as being worth while, and it has served me very well in some cases I have had since. One was a young man in from France with a history of some pulmonary trouble, possibly. He had been to a hospital two or three times for the removal of his tonsils, and the surgeon refused to operate. He was emaciated, and his color was bad. Upon examination he was found to have a distinctly tubercular tonsil. We employed this method of which Dr. McCain has spoken, with complete removal of the tonsil in about four applications. From the time we used the second treatment we could see a marked improvement in the tonsilar tissue. The patient rapidly recovered, his temperature went to normal, and he seemed perfectly well. That was over two years ago.

Another patient we had seemed to have tubercular trouble. One of the physicians in town sent her to me for examination. He thought she had tubercular tonsils, and I thought she had. We treated her with this method, and the results were good. Dr. McCain has had her in his hospital since, and can tell you more about her.

We have found, in cases of tubercular tonsils, that we can remove the entire tonsils with the high frequency current, and if you do not desire to do this, you can sterilize the tonsils with a few applications.

We are certainly indebted to Dr. McCain for presenting this method to us. I have a great deal of confidence in it.

Dr. Briggs, Chairman: The subject of removing tonsils is always very interesting, and there seem to be as many techniques as there are operators.

I am very glad to hear this paper by Dr. McCain, and I hope that this method may prove most practical in a certain class of cases. I see no reason why, if indicated in cases of pulmonary tuberculosis, it would not be indicated in any case. I would be glad to see the operation performed and observe the end results. In replying, I hope Dr. McCain will tell us something about the scar tissue that is left, whether the operation destroys the capsule, and any tissue beyond the capsule, and whether the pillars are sometimes injured; also, whether the upper pole in the so-called submerged tonsil can be easily reached without injury to the important parts adjacent.

Recently an ex-army officer, who had pulmonary tuberculosis, consulted me on account of a sudden rise in temperature to 102 or 103. Upon examination we found the centre of his left tonsil almost sloughed away, leaving the inner surface quite intact. The tonsil was enucleated locally in the usual way. The temperature next morning was practically normal, and remained so for a week, when the other tonsil became involved in the same way and was likewise removed. The patient made a perfect recovery and has as smooth fossæ as one could wish. The diagnosis of tuberculous tonsils was confirmed microscopically by a trained pathologist.

I sometimes remove tonsils with the electric cautery in the tuberculous, especially if there are other points of inflammation or ulceration in the pharynx, which I cauterize at the time.

I shall follow this method of operating with a good deal of interest, and I thank the Doctor for presenting the paper.

Dr. McCain, closing the discussion: In reply to Dr. Brawley's inquiry as to secondary hemorrhages, there is no bleeding either during the operation or following it. This is one of the main advantages of the method.

In reply to the Chairman's question as to destruction of the capsule or of the anterior of posterior pillar, you can carry the destruction to any depth you desire. We always try to keep away from the pillars, because the pain is pretty severe if the pillars are touched or burned during the process. By exercising care the pillars need not be touched at all.

As to the submerged tonsil, by bending the electrode you can get to any part of it with but little difficulty. If you are not certain as to whether you have destroyed the whole tonsil, you can have the patient come back after the part destroyed has come away, and if you have not removed it all you can give another treatment. The patient

will come back, because there is not very much pain and no bad after results.

The one drawback is that it takes more time and perhaps more patience. In patients with very sensitive throats, five or six applications for each tonsil may be necessary.

As I brought out in the paper, this method can be used not only in tuberculous patients but in any cases where surgery is contra-indicated. For an anesthetic, you need only a topical application of novocain or cocaine.

SYMPATHETIC OPHTHALMIA

John B. Wright, M. D., Raleigh

In fifteen years practice as an ophthalmologist I have found only one case. I think it quite rare, but perhaps my few cases are due more to the fact that I make it a hard and fast rule to enucleate every eye whose damage is so extensive as to destroy useful vision, provided the ciliary body has been involved, than to the rarity of the disease.

Sympathetic ophthalmia, like tetanus, is fairly easily prevented when due to traumatic injury, but very serious when expectant and not vigorous prophylactic measures are resorted to.

The case I shall report refused to accept my advice and consent to enucleation until the other eye had been involved at least two weeks. The inflammation in the well eye usually begins between the tenth day and three months, though there are cases reported beginning before the tenth day and others reported as long as fifty years. The latter I do not believe are due to the old injury and I frankly believe should have been classed under the head of idiopathic inflammation.

Under the head of etiology we find as much variance of opinion as to time. It is most frequently due to penetrating wounds, more especially in the ciliary zone. These wounds usually are infected. It has been reported, after cataract operations done under the strictest aseptic technique, after Mules' operation, after fragments of percussion caps entering the eye ball, after tattooing of the cornea, after sarcoma of the choroid, after enucleations, after bullets lodging in the eye ball, etc. In fact, almost all injuries of the eye have been accused of being the cause of sympathetic ophthalmia.

Transmission of sympathetic ophthalmia. There are so many theories advanced that I shall very briefly name a few:

1st. The old theory of McKenzie (migration theory) that is, the retina of the injured eye being in a state of inflammation which is carried along the optic nerve to the chiasm and by the other optic

nerve to the retina of the well eye. This theory was easily disproved.

2nd. The theory that the inflammation was transmitted through the ciliary nerves.

3rd. That the disease was transmitted from eye to eye through the blood vessels.

4th. The theory of metastasis, that the cause is a micro-organism and is transmitted as in metastatic sarcoma.

5th. Toxin theory.

6th. I suppose should be termed the theory of anaphylaxis. This theory was most ably championed in a thesis read by Prof. A. Elschnig of Prague, Austria, before the American Academy of Ophthalmology and Oto-Laryngology at Niagara Falls in 1912. Professor Elschnig claims "that specific antibodies are formed; for example: If one injects into a guinea-pig a small amount of horse-serum, the guinea-pig reacts to the injected horse-serum by forming specific antibodies. When this process of antibody formation is completed, some twenty days later, if we again inject intravenously a small quantity of horse-serum, the animal exhibits the symptoms of shock, which has been termed anaphylaxis, and dies, while the same quantity in a guinea-pig that had not been previously injected would produce no appreciable effect. Besides this general anaphylaxis, there is a local one, such as the local reaction after tuberculin injection." He elaborates on this by making specific tests with eyes alone, then carries it a step further and makes the same tests with corneal tissue, thus making out a strong case for his theory.

"So through an injury, whether directly through the injury itself, the foreign body or the introduced micro-organisms, an eye becomes inflamed and uveal tissue is damaged; the uveal tissue and pigment is resorbed in antigenic form and antibodies are set free in the blood. These antibodies react with the remaining normal uvea of the injured eye and likewise with the uvea of the second eye rendering them hypersensitive or sensitizing them. So just as the anaphylactic shock occurs in the guinea-pig receiving the second dose of serum, so in the eyes, and especially the well eye, whose uveal tissue had been sensitized, the anaphylactic shock occurs, and we have the sympathetic shock, which is sympathetic inflammation."

This theory is by far the most plausible of any yet I have read, but if both uveal tracts are sensitized why should the shock be *always* greatest in the uninjured eye? Then, too, how could he explain why the occurrence after say ten to twenty years had elapsed since these antibodies were formed? This, like all the other theories, is too easily exploded. The more we study the disease the more we are convinced

that we know but very little about it. I have, as one of the oculists for the white and colored blind schools located in Raleigh, seen quite a number of entirely lost eyes from sympathetic ophthalmia, but I have had only the one case in my practice.

REPORT OF CASE

Miss E. G., 18 years, white girl, cut with pocket knife April 9, 1920, in right eye; cut through upper lid, incision slightly to outer cornea to outer side of pupillary area. Incision entered cornea at upper corneo scleral junction, and cut through cornea and iris, extending to corneo-scleral junction below anterior chamber filled with blood, extravasation of blood below and inward in conjunctiva. The edges of incision were so nicely coapted I decided to thoroughly cleanse eye, drop atropin Sol. and argyrol in, put light dressing on eye and wait developments. This line of treatment was kept up until April 23, when eye was so much improved patient was allowed to go home and treat eye herself. May 8 patient was seen and other eye showed signs of irritation, slight circumcorneal congestion. Patient was seen two or three times within ten days and enucleation of injured eye advised, but patient refused. However, all the symptoms very rapidly grew worse, eye very badly inflamed, sight gradually growing worse, irido cyclitis, pupil contracted, pain over eye iris bound by adhesions and on May 22 patient gave consent for injured eye to be removed. This was done and no stitches put in. Patient put to bed, given proto iodide of mercury, and 10 grain doses of Salicylate of Soda every 4 hours, atropin 4 grs. to ounce every 4 hours, hot compresses and dark room, good eye gradually grew worse. This treatment was kept up for several weeks, all the time the sympathetic ophthalmia very gradually growing worse. The mercury and sodium salicylate were discontinued and benzosalin given in ten grain doses, within ten days after beginning the benzosalin the eye was very much improved; by August 1 the eye seemed entirely well. The benzosalin was discontinued and eye within less than a week was red and showed it was again in a precarious condition. The benzosalin was at once begun again and the belladonna again given in full quantity. Again in October the eye appeared to be well and the benzosalin stopped and again the eye flared up and we went back to the benzosalin a third time. In November, the benzosalin was discontinued to be recommended in less than ten days. In the meantime, I had discovered the patient had some old toxic tonsil stumps and had advised they be removed, but met with a refusal. When for the third or fourth time I was forced to return to the benzosalin, I plainly told the patient to keep on taking the benzosalin the rest of her natural life or let me remove the diseased tonsil stumps. This was done on December 11. On December 20, eye apparently well. All medicine stopped. Saw patient February 23, eye slightly red. Patient gave history of reading for four consecutive hours and eye grew worse. Pupil had nearly come back to normal from the atropin but was slightly oblong showing some adhesions from the plastic lymph and long dilatation from atropin. Again we returned to the benzosalin and atropin. Saw patient again on March 2, eye practically well , vision 20/20. All medicine stopped. She has been apparently well ever since and uses her eye freely for reading, etc.

The interesting point in this case is the good results of the Benzosalin and the fact we could not get this eye to stay well until the diseased tonsils were removed.

The fact that the eye was so persistent in its returning to the same inflamed condition caused me to suspect there was a focus of infection somewhere that acted as a feeder to this already weakened member, and then, too, after the focus of infection was removed and the eye remained quiet caused me to feel that the foci were (to put it the mildest) at least a hindrance in getting the eye well.

Now, do not think I am trying to convince you gentlemen that sympathetic ophthalmia is wholly due to focal infection. Yet, I do firmly believe that many eyes have been lost because of the activities of focal infection. The modus operandi of focal infection I can't explain, why it will select an eye one time, a nerve another, a joint another, a kidney another, etc. Yet, we *think* that we know they do.

The treatment of sympathetic ophthalmia has been included in my case report.

DISCUSSION

Dr. Henry L. Sloan, Charlotte: I am much interested in this very interesting paper of Dr. Wright's, and I recall a talk that Dr. de Schweinitz gave us after one of his visits to France. He states that from his experience in this war, sympathetic ophthalmia is not the bugbear it was once thought. Later I saw an article by Dr. Victor Morax saying that sympathetic ophthalmia was fairly frequent, but not so frequent in this war as in former ones, because the patients got better treatment.

Preventive measures are, of course, to enucleate the eye as soon as possible. However, I have seen several statements recently, one by an American oculist, saying that he did not consider it necessary to remove an eye with a foreign body in it. Now, that may be good teaching, though I would hate to see any of my cases walking around with a foreign body in the eye. One case which came under my care gave a history of going around with a piece of steel in his right eye for twenty-three years. It was removed then, and showed lessened visual acuity. But this is very rare. A perfectly quiet eye might be left with a foreign body, could it be under careful observation.

I had a case a short time ago, a colored girl with small shot in her eye. I gave her about sixty grains of sodium salicylate during the day. She looked at first as if she might have meningitis. Intensive treatment with salicylates, and other well known procedures, did no good.

Good theory does tell us to remove the injured eye when it is injured

beyond hope of any vision left. I am not familiar with this treatment of Dr. Wright's, but there are a number of cases in which good results are gotten by giving huge doses of sodium salicylate. If you can not give it by mouth, you can give it by enema.

Dr. J. W. MacConnell, Davidson: I hesitate to speak again, but I certainly wish to commend the treatment which Dr. Wright gave the patient in this interesting case. But I feel sure that he would hardly be so bold as to say that he has proven his case exactly. That is, was there any new inflammation set up in the injured eye just before the onset in the uninjured eye? It would seem that the enucleation of the injured eye in that case would have absolutely no bearing. That is, if there was an acute inflammation in the injured eye, we would see how enucleation would be of benefit to the remaining good eye, but if the eye first injured had quieted down and the irritation had set up in the other eye, I doubt if the enucleation would have done any good in the case. Of course, like Dr. Wright, we see a good many cases refuse enucleation with no bad results. The case is interesting, and I know that Dr. Greenwood and Dr. DeSchweinitz came to the conclusion in military service that sympathetic ophthalmia was not as frequent as we once thought it was.

Dr. Wright, closing the discussion: Replying to Dr. MacConnell's comment, that the removal of the damaged eye would have had no effect, there was absolutely no vision, and I recommended removing the eye. As the case resulted as it did, I am glad that I took it out, as it evidently was the offender.

There are so many things that enter into these cases, and the results are so unexplainable. For instance, one of the A. and E. College boys came to me for conjunctivitis. The college physician had been treating him for six weeks, but he did not get well. I found his tonsils diseased, and squeezed out a lot of foul-odored, cheesy debris. The next day his eyes were better. I doubt if the tonsil trouble would have started the eye trouble, but it was certainly a causative factor.

When it comes to the cause of sympathetic ophthalmia, I do not believe that any of us know. But I can not get it into my stupid cranium why they call it sympathetic ophthalmia in a case with an injured eye that has been well for forty years before the eye becomes inflamed. I would much rather believe that it came from a gall bladder or diseased tonsils or bad teeth or some focus of infection.

In regard to the benzosalin, I had never heard of it. I noticed from the literature I could gather that there were more favorable

reports from benzosalin than from any other salicylate, so I ordered some. It is a preparation of the salicylates, and acted very beautifully in this case.

Dr. Russell S. Beam, Lumberton: I was prompted to write this paper on account of the great ease with which enucleation of the eye could be done under local anæsthesia.

ENUCLEATION UNDER LOCAL ANÆSTHESIA, WITH REPORT OF TWO CASES

Russell S. Beam, M. D., Lumberton

1. Enucleation of the eye under local anæsthesia has not been practiced generally by the ophthalmologist. In fact only a few cases have been reported, and while it is not to be recommended as a routine, still the comparative ease by which it can be done by this method, makes it essential, in the writer's mind, that every ophthalmologist becomes familiar with the technique, as the same conditions exist to contra-indicate a general anæsthetic in this as in any other surgical condition. Again one quite often sees cases, especially where life is not in jeopardy or excruciating pain present, refusing operation on account of the anæsthetic, but consenting after being informed that it can be done under local anæsthesia. This fact, I am sure, saved an eye from sympathetic inflammation in one of the cases I will report in this paper. Again the operation can be done under local anæthesia where conditions are not favorable for a general anæsthetic, and while the condition is to be deplored, very few of us have access to hospitals where provisions are made for charity patients, making it necessary to do more office surgery than would be done if this condition did not exist.

2. As to the anæsthetic to be used, this should depend somewhat on the individual preference of the operator. No one has a distinct advantage over the others. Cocaine, on account of its more rapid action and more complete anæsthesia, would be preferred except for its greater toxicity and the fact that it cannot be sterilized and for this reason I have practically abandoned it, where the drug is to be injected into the tissues, in favor of novocaine and apothosine.

3. The operation of enucleation under local anæsthesia does not differ from the operation as usually performed except in the administration of the anæsthetic and certain precautions that are to be taken to prevent pain to the patient, and for this reason the description of the technique of enucleation will be omitted except that part which

differs from the operation when done under general anæsthesia, and these points can be made in the report of the following two cases, which are very illustrative of the type in which local anæsthesia is more preferable.

REPORT OF CASES

Case 1.—V. C., Indian, female, age 74, admitted to hospital June, 1919. Had apoplectic attack four years ago and has complete loss of use of left upper limb and partial loss of use left leg, mitral regurgitation and chronic nephritis, blood pressure 190. She was prepared for enucleation of the left eye in the usual way up until half hour before the operation was to be performed. At this time the patient was given one fourth grain morphine and 1-100 grain hyoscine and five per cent cocaine solution was dropped in the eye at five minute intervals to anæsthetise the cornea and conjunctiva before injecting the anæsthetic, which, in this case was sterile 2% novocaine solution to which had been added a few drops of adrenalin chloride solution. The lids were held back by an assistant with lid retractors instead of a stop speculum as is generally used and the injections made slowly under the conjunctiva and backward along the recti muscles, care being taken to make as little traction on the globe as possible. After the conjunctiva and adjacent fascia had been divided the tendons of the ocular muscles were raised with a trabismus hook and severed. Care being taken to make no traction on the muscles and optic nerve as most of the pain is due to this cause. Curved scissors were introduced and made to follow the curve of the eyeball until the optic nerve was reached where the blades were separated and the nerve severed. Up until this time an assistant held the globe firmly in the socet instead of drawing it forward as is usually done when operating under a general anæsthetic. The ends of the muscles were stitched together and the conjunctival wound closed in the usual way. On the following day there was, perhaps, slightly more inflammatory reaction than when the operation is done under general anæsthesia, but the patient made an uninterrupted recovery, being discharged from the hospital on the seventh day.

Case 2.—L. T., male, negro, 36 years old, general health good, no contra-indication to general anæsthetic. Admitted to hospital October first, 1920, with ragged wound in cornea right eye extending through ciliary body, complicated by severe irido-cyclitis. Symptoms of sympathetic irritation in opposite eye were present. Enucleation was advised but the patient refused operation, but remained in the hospital for three weeks under treatment. During this time the globe became considerably shrunken and the symptoms of irritation in the opposite eye continued. He was discharged on the twenty-third day and at this time he stated that his only objection to having the eye removed was, "being put to sleep," and on being informed that it could be removed under local anæsthesia, readily consented and was re-admitted to the hospital and the eye removed the following day by the same technique as in Case No. 1. the wound healing in the usual length of time and the irritation in the opposite eye disappearing.

COMMENT

1. Enucleation can be done successfully under local anæsthesia and should be used where general anæsthesia is contra-indicated. It is not to be recommended as a routine and cannot be used successfully on nervous and excitable patients. Dangers of infection are slightly greater but this need not be a serious objection if the proper precautions are taken to sterilize the solution used. Pain, which one would expect, is almost nil, if the anæsthetic is properly injected and precautions taken, during the operation, to prevent traction on the muscles and optic nerve.

DISCUSSION

Dr. John B. Wright, Raleigh: I enjoyed hearing Dr. Beam's paper. It has been my misfortune to have had a couple of operations where it was impossible to give a general anæsthetic, and I used cocaine and got through with practically no pain. My associate, Dr. Battle, recently did the same operation, and the results were just as satisfactory in all three of these cases as if we had used a general anæsthesia.

Dr. Briggs, Chairman: I have, on several occasions, been compelled to remove tonsils and enucleate eyes in the tuberculous, and only recently have done two cases in elderly people with heart and kidney lesions, with cocaine anæsthesia. I had no ill effects from it, but I would now be afraid to use it as freely as I used to. With novocain I have never had any trouble or any severe pain. The last case I had was an enucleation of the eye in a man aged seventy-three, who talked to me on another subject during the operation, and later said he did not feel any pain during the entire operation.

THE PREVENTIVE MEASURES OF EAR SURGERY

Dr. T. W. Davis, Winston-Salem

Probably 75% of Surgery is emergency, and done on account of inflammation, and to forestall the evil consequence thereof. This is most assuredly true of Ear Surgery. The basic principle underlying such surgical treatment is to furnish drainage and ventilation. The beginning of Otitis Media Acute, is most invariably a state of tubotympanic congestion. The swollen tissue lining of the Eustachian tuge, interferring with middle ear ventilation, until in many instances

the middle ear becomes a closed box; than which a more favorable state for inflammatory microbic action could not be had. It is a loss of valuable time to wait for evidence of a collection of fluid in the middle ear, before doing a paracentesis, once inflammatory state is established. When to all minds familiar with the situation in which certain serious future possibilities present themselves, such as Septic Thrombosis, Brain Abscess, Meningitis—no possible preventive measures should be neglected. Often an early paracentesis is neglected, because the family physician, and not the Otologist, is called in to treat an ordinary ear-ache, and for which Anodynes are administered. Another point of neglect is when the ear opens itself and the drainage thus gotten is considered sufficient. My experience is that the openings are very often insufficient for recovery. Such openings are usually in the lower central quadrant, and do not drain the attic and adjacent antral infection. Possibly and probably, in such cases a superior posterior membrane incision and vertical superior posterior canal wall incision is necessary. *In illustration,* I recall a case seen recently, in which a boy, age 14 (a doctor's son) gave history of ear-ache starting three days previously and thereafter, soon followed by free discharge, and relief of pain. Evening temperature, however, was 102 to 103. Otoscopic examination showed lower central perforation plenty large, and with very free purulent discharge. I decided to wait 24 hours. The next evening revealed the same rise of temperature and just a little higher. Protrusion at the juncture of superior posterior wall and margin of tympanum, was observed, and also a little tit-like prominence, apparently containing pus. A free vertical incision at this point was made, (gas anæsthesia being used). The best of results were gotten, for the temperature dropped to normal and remained so, with an uneventful and satisfactory return to health of the middle ear. This surgical help to nature, though minor in character, was unquestionably the preventive measure to an acute Mastoiditis, a general sepsis or a chronicity of the suppurative process in the middle ear.

The question of secondary or subsequent paracentesis is an important one, also the care of the ear after paracentesis. If the value of the incision is to be gotten, the canal must be kept clean and free of secretion, which tends to thicken and form a detritus, which blocks drainage and ventilation. I believe the wick drain to be the best method, if properly placed and changed often, but for the average case it is not practicable, and one must rely on syringing by an attendant or nurse, and one only has to examine the ears from day to day to find out how far short this procedure falls in accomplish-

ing its intentions. This should not be held altogether against the nurse or attendant, however, for no one can tell when the canal for its entire length is clean, without visual inspection. The burden and the responsibility fall upon the Otologist.

As to the secondary and subsequent incision in membrane or wall, each case is a law unto itself. In a general way, a tendancy to infiltration and redundancy of tissues, with continued elevation of temperature and possible tenderness over mastoid, indicates the need for repeated incision. I have done so, as many as three times, finally getting complete recovery, then again the same treatment has failed in results. Much depends upon the tissue resistance of the patient, and at times this local surgical help to nature carries the patient along until the time of tissue resistance is reached and recovery takes place.

Before leaving the subject of incision of the Tympanic Membrane or canal wall, I am reminded of some cases in which, an apter phrasing is to say, "Ear Surgery, (tho minor) as a means of Cure," rather than "Ear Surgery as a Preventive Measure." Such a case I have recently seen:—M. D., Female, age 2½ years. History of discharging ears since age of 3 months, had been sick for last two months and had been seen by several physicians and treated for Pneumonia and Pleurisy, had run a low temperature continuously, had lost weight, and much emaciated at time of my examination; temperature 101, pulse 130, very fretful and restless, especially so at night; had clawed at the head until the hair was worn off entirely in places. The case was referred to me by a surgeon, consulted on account of supposed pleurisy with effusion. X-ray of chest and tapping being negative, it was suggested to the patients that an examination of the head be made. Otoscopic examination revealed a more or less acute condition in both middle ears, though there was a purulent discharge from central perforations. However, the characteristic bulging, sagging tissue at the juncture of tympanum and superior posterior wall was present. Accordingly, advice to incise was given and free incisions were made at the points mentioned. Improvement in the child's condition was immediate. After 2 or 3 days the temperature was normal and the child wanted to play. Phoning me two weeks later the mother says, "The child is well and has no discharge from the ears." This may be an unusual case, but it certainly impresses one with the value of this comparatively minor surgical measure in reversing the trend downward, to that of a return to health. A prominent surgeon speaking in reference to mental attitude in relation to functional nervous diseases says, "After all, life is what we believe it to be, and happiness

is a state of mind, not necessarily a state of body." Yet daily in the surgical world the material act spells miracle.

What are the preventive measures and what the object of the Radical Mastoid Operation?

(1) By removing a suppurative area it removes the patient from the border line danger of intracranial complications.

(2) If successful, it obtains a dry ear, tho a non-functioning one.

The Radical Mastoid operation is a most important preventive measure of Ear Surgery, but the chronic suppurative ear should never have been, and herein lies the application of the most important of all preventive measures of Ear Surgery—it deals with the initial Otitis.

When an acute suppurative Otitis Media passes into the subacute stage and tends to remain, and become chronic, there is only one proper thing to do, that is, to drain thru the Mastoid Antrum, by what may be termed a modified simple Mastoidectomy; that is, going straight into Mastoid Antrum (not removing the uninvolved cells) except sufficiently to give ventilation and drainage to the middle ear, long enough for resolution to take place. This is what I call back door drainage and for anatomical reasons it is the only procedure that drains and ventilates sufficiently for a cure. The peculiar anatomical relation of the Mastoid Antrum to the middle ear is such that drainage is good from middle ear through the antrum, and has the advantage of gravity, with the patient on his back or the affected side, while this is not true of the reverse, that is the attempting drainage of the Mastoid thru the middle ear, one has only to examine the boney specimen for his conclusion on this point. Too, we cannot fail to be impressed with how quickly a suppurating middle ear becomes dry, once drainage is established thru the Mastoid Antrum, following Mastoidectomy for acute Mastoiditis. Acute Mastoiditis like acute Appendicitis, argues operation for itself. However, with a different situation; no acute Mastoiditis, and with patient feeling well, naturally there is some hesitancy on the part of the patient and his family physician in accepting operation. *This is the argument.* It is not a dangerous operation, the patient is usually out in a week, he has a dry ear and in two to three weeks the Mastoid wound is healed. How infinitely better to do this, save the hearing, get a dry ear and transfer the individual from the edge of a precipice to a place of safety. The menace of a rotten spot so close to brain, Meninges, and Venous channel, is one that the modern Otologist cannot afford to be held responsible for. Chronic suppurative ears, Radical Mastoid operation, and dangers of intra-cranial complications from the ear focus, must become things of the past.

In regard to this operative measure of cure for suppurative Otitis Media, there is nothing special to say except as before said, all involved cells of the Mastoid, if any, are of course removed and sufficient of uninvolved bone, especially on a level with, and outward from the vault of the Antrum, as to keep direct drainage and ventilation of the middle ear, sufficiently long for the ear to become dry—on an average say of two weeks.

Just how long one should wait before advising operation depends upon the response gotten to treatment and the corrective measures used—certainly it should be done before the patient gets from under observation with a continuing discharge from the ear, certainly it should be done before bony Necrosis takes place. I have operated with good results as late as six months, and have had chronic ears of years standing to heal, and perforations close, following Mastoidectomy for acute Mastoiditis. I believe many chronic suppurative Otitis Medias of long standing have little or no Necrosis, and will heal with proper drainage and ventilation. The draft period, of the recent war, revealed an astonishingly large number of chronic suppurating ears—a surprisingly large number got past the examining boards. Personally, many of them were seen by me in the service.

Disregarding the danger to life, you nor I would relish the idea of carrying a discharging ear thru life, neither would we care to have a Radical Mastoid. Much that I have said is trite, and common place among us. Yet, is it familiar to, and is its importance felt by others, others whose influence must go far in directing the patient, and in bringing into practice necessary measures of prevention and cure? After his patient gets over the pain and has no fever, is it customary for the average physician to give a thought to the future course of a suppurating ear?

The question might be asked, does the Otologist have a duty in this matter, and is he meeting it?

DISCUSSION

Dr. M. L. Smoot, Fayetteville: I would just like to add my endorsement to what Dr. Davis has said about the minimum of surgery necessary in an ordinary acute mastoid. It is passing strange to me that in an average case it should be so necessary to do such radical operative measures when, after all, all that is necessary is, as somebody has said, to dig a hole in the mastoid process and give the ventilation and drainage of which Dr. Davis has spoken. Unless there is a necrotic area, I do not see the importance of such wide destruction of tissue.

Dr. C. W. Banner, Greensboro: There is one thing that I wish not only to endorse but also to emphasize, and that is opening up the tympanic membrane, under general anæsthesia. I believe we often do these things badly by using local anæsthetics. I believe an operation of that kind should be done under a general anæsthetic, and I believe gas is best. If it is not available ether may be used.

Dr. Briggs, Chairman: It seems to me that Dr. Davis has held out a plan by which we might obviate a great deal of ear surgery. It is the early measures that count. It is the "stitch in time that saves nine" in ear surgery. I do not know of anything in which that is more applicable.

CONSERVATIVE MASTOID SURGERY

J. G. Murphy, M. D., Wilmington

Our Chairman in making up his program for this meeting asked me to write on some phase of Mastoid Surgery. This is a fitting subject to consider at this season of the year when colds have been so common which are recognized as the cause of practically all cases of mastoiditis. To speak of a cold may not be scientifically correct, however, it is as necessary in the subjects of otology, rhinology, and laryngology as is slang to Irving Cobb in writing an article in the Saturday Evening Post. Since I turned in my subject for this paper some weeks ago my office associate and I have had two cases in which the question as to whether to operate, or not so baffled us that I am convinced we are considering a question of more than passing importance to the otologist.

In reviewing my library I find rules for operating laid down by different authorities, however, neither of the above mentioned cases were strictly defined under these sets of rules. The general surgeon because the lesion is in a hidden field is often in doubt as to whether or not to remove an appendix, however, he has this assurance that should it really not need removing he has not done his patient any harm, but on the contrary has possibly benefited him by having removed it. Similarly, we otologists have a lesion in a hidden field, and if we err in operating on a case that would recover without an operation we have not left our patient in a better condition, but rather in a worse than he was before. He is deprived of the mastoid antrum communicating through the auditus with the tympanic cavity which

serves as a safety valve to middle ear infections, and also as an additional air space to relieve pressure in the middle ear cavity.

What I am saying of course refers to acute and sub-acute mastoiditis, and does not apply to cases in which a radical mastoid operation is to be considered.

So much as to the question of when not to operate; but as to the mortality rate in brain abscesses, and sinus-thrombosis cases, caused usually by not operating soon enough is so much greater than the mortality rate of peritonitis following attacks of appendicitis which are not operated upon at the proper time, we otologists are confronted with a tremendous responsibility. Of course the classical symptoms calling for an operation pain, tenderness over the mastoid tip, and over the antrum, a sagging of the posterior-superior wall of the external canal internally adjacent to and continuous with the tympanic membrane, a standing out of the auricle, continuous, deep seated pain in the side of the head over the ear, bacterial test, as the finding of the presence of the streptococcus capsulitis, blood count, temperature and persistent discharge which do not respond in a reasonable length of time indicate an operation, however, we so often have cases in which possibly one or two of these symptoms are prominent, or even exaggerated, and others are absolutely lacking, and here is where that most valuable of all aids, good surgical judgment, comes to our rescue. I have operated on cases with no tenderness over the tip, or mastoid antrum, and only slight discharge from the tympanic cavity and found large areas of pus and granulations resting directly on the dura. Certainly an operation was indicated here, and if not performed would sooner or later end disastrously. My experience has led me to believe that when we find one, or two, or three of the recognized symptoms exaggerated even though the others are entirely lacking, an operation is indicated, and I have found when we open up under these conditions our decision to operate has not been lacking in good judgment for the interest of our patient.

Read at the Meeting of the North Carolina State Section of the American College of Surgeons January, 20, 1921, Charlotte, N. C.

LATERAL SINUS THROMBOSIS COMPLICATING ACUTE MASTOIDITIS

H. H. Briggs, M. A., M. D., Asheville

During the mild epidemic of Influenza one year ago, C. H., boy, sixteen, at boarding school, was taken with sore throat January 13, 1920, and treated by school physician who diagnosed double acute follicular tonsilitis. Condition improved, but that of acute otitis media had begun when I was called on January 17, finding right drum membrane distended and left deeply injected. Right was opened allowing flow of muco-pus. Patient suffered that night with pain in left ear, which was found the next morning in similar condition and was likewise drained. Moderate discharge from each ear and pain in right ear continued when on the evening of the next day the nurse phoned that the temperature, which hitherto had ranged from 101° to 103°, had risen to 106°. Patient was immediately brought from the school, six miles away, to the hospital. Chest found negative, heart enlarged to the left, systolic murmur at apex and base. Abdomen negative. Urine strongly acid, showed medium trace of albumen. Temperature had fallen to 103.4°, but patient was evidently very toxic and in bad condition. Consultation as to general condition held, and immediate operation was decided upon which revealed a very extensive diplœic type of mastoid, the large cells mostly filled with a thick glary muco-pus. The cell walls were dark and soft, showing rapid disintergration down to a definite area of demarcation. On account of patient's condition dissection was not carried out exhaustively, but entire necrosed area was removed. Specimen of pus taken at operation was lost. Condition of patient improved and on January 23, temperature was normal, but in the afternoon of same day it rose to 105.2°. Mastoid wound seemed satisfactory. Urine hazy, strongly acid, medium trace of albumen, few clumps of pus showing seemingly pure culture of a strepto-diplococcus. White cell count 17,700, blood culture negative. On January 24, general condition better, temperature 100°, urine much improved. On January 23, temperature rose to 104° at 3 A. M., and back to 100° at noon. White cell count 19,000. No micro-organism found in blood, and culture negative. On January 27 wound became foul. There had been constant tinnitus in right ear since operation. Acute labyrinthitis was suspected and possibly sinus in-

volvement. The essayist being sick at this time, his associate, Dr. L. M. Griffith, who then had charge of the case, did a second operation finding the labyrinth intact and on exposing the sinus, found perisinus infection, but no indication of intramural involvement. For the next few days patient's condition was unchanged and at noon of the 28th, the temperature suddenly rose to 104°, when, without anæsthesia, because of patient's condition, the sinus having been uncovered at previous operation, was opened, part of the thrombus removed, care being taken not to disturb the distal portion, and by means of a rubber suction tube the fragments were drawn out back to the torcular, establishing a free flow of blood from the proximal end. Later in the day a short ether anæsthesia was sufficient for ligating the vein, which was found collapsed, and for removing balance of thrombus down to the bulb. The white cell count dropped to 14,000 the next day, and the case began the long slow but steady convalescence common in such cases of virulent infection and sepsis in which the streptococcus hæmolyticus is the star actor.

Lateral sinus thrombosis complicating acute mastoiditis is of more frequent occurrence than is generally considered. This was especially true during the influenza epidemic of last winter. To a less extent does it accompany chronic mastoiditis. Statistics of former years would indicate that this complication occurred as frequently in chronic as in acute mastoiditis, but the better care given chronic suppurative otitis media in recent years, together with the more virulent types of acute infection which we now have to encounter have rendered this complication far more frequent in the acute conditions. Sinus phlebitis and thrombosis may occur of course without being a complication of any aural disease, or may accompany an otitis media so mild in form as to be unrecognized by the usual clinical means. Autopsies furnish us with ample proof that lateral sinus thrombosis frequently recovers spontaneously unrecognized, leaving as evidence an obliterated sinus.

I am led to believe that certain types of infection and certain epidemics show a decided predilection to sinus involvement. In the author's practice, during the first three months of 1920, at the time of the last influenza epidemic, seven out of twenty-one consecutive cases of acute mastoiditis were complicated with sinus thrombosis.

It seems that the younger the person the more frequent the complication. Of fifty cases reported by Jones, the oldest was forty years, with fourteen and one-third years as an average.

In either chronic or acute suppurative otitis media the most characteristic and reliable symptom of a beginning sinus infection is a

rapid elevation and remission of temperature. This may occur two or three times in twenty-four hours, may rise as high as 106° and is usually accompanied with chills. It is the more trustworthy when there is ample middle ear drainage, and no cerebral or meningeal complication. In order to detect these symptoms it is quite necessary that the nurse be on the alert to note chilly sensations or chills, and the temperature also may escape notice unless it be taken at least every three hours. Headache especially occipital on the infected side and differing from that usually accompanying mastoiditis is present, and like that of the latter is not readily relieved by analgesics. Vomiting and general malaise may be present, and metastasis, showing predilection for the lungs, joints and superficial tissues in the order named, completes the chain of septicemic symptoms.

Pain, tenderness and swelling posterior to the mastoid over the emissary vein have been constantly present in all our cases and should receive careful consideration.

Tenderness over the jugular is a symptom of jugular phlebitis rather than sinus thrombosis and too late a symptom for the alert diagnostician to wait for.

Unilateral and bilateral optic neuritis is present in twenty-five per cent of the cases, and would probably be noted more frequently if routine fundus examinations were made. It is seldom found as an early symptom in acute cerebral conditions.

Blood examination is of inestimable value and of special significance is the increase in the leukocystosis and a high polymorphonuclear percentage. A white cell count should be made early as a routine in order that we may note any increased leukocytosis accompanying an elevated temperature. The cell count in sinus thrombosis seldom runs higher than 25,000, and may also help to differentiate this condition from meningitis, in which the count may be thirty, forty, or fifty thousand.

Operate early, as soon as a diagnosis is made. It is better to occasionally do an unnecessary operation than to delay until the condition is inoperable. In an adult case without cerebral symptoms with a freely draining ear, with or without a tender mastoid, but with tenderness over the emissary vein, with septic temperature, with or without chills, with an increased leukocytosis and high polymorphonuclear count, and possibly optic neuritis, surgical interference is indicated. In small children all these symptoms may exist, except the optic neuritis, without thrombosis.

Indication for operation is the more positive if during a previous mastoid operation a perisinus abscess was found, or the sinus wall

injured by accident, or perforated accidentally or intentionally, thus furnishing a possible route of infection.

In general four methods of operating have been practiced. First, after completing the mastoid operation the sinus is exposed and, if found thrombosed, is opened, and the soft portion only of the thrombus removed. Second, having found the sinus thrombosed the internal jugular is tied below any contained thrombus and the thrombosed portion resected as far up as the jugular bulb. Third, the upper end may be brought out of the wound and left open for drainage. Fourth, simple ligation of the jugular above the facial vein may be done.

The first method of treating the sinus alone is unsurgical and should be condemned. The process of thrombosis is nature's method of ligation and to curet the sinus without first ligating the jugular vein is inviting systemic infection. Better than this would be to freely incise the sinus under aseptic precautions without curetting, and then antiseptiсise the incision and field. The method of resecting the vein after ligation I formerly practiced; but have found that ligation alone, requiring but a few minutes time, and leaving ample drainage in the incision, equally as efficient, necessitating less trauma, less shock to the patient, and giving far better cosmetic result. If the vein is very greatly distended with a clot already disintegrating, it should be opened longitudinally throughout and left open for drainage.

It is my practice—once the vein has had proper attention—to open the sinus by resecting a strip a few m.m. wide along its exposed wall in order to facilitate drainage, removing the clot as low as the bulb and as far posteriorly as necessary, even to the torcular. To facilitate the latter I have used a rubber tube attached to a suction pump to withdraw portions of thrombus, and to avoid pushing the fragments into the torcular and thus into the general circulation, continuing the suction until a free flow of blood returns. This method was used successfully in one case which was extremely toxic and unable to take an anæsthetic, the bony covering having been removed at a previous operation.

If from the symptomatology one is reasonably certain that the sinus is thrombosed or a phlebitis without clot present, the vein should be ligated even before the sinus is exposed. In two of our cases the complication occurred three days after the primary operation at which the sinus had been carefully exposed and found apparently free from infection. Whether an undiscovered phlebitis was present at the time of operation, or whether it developed later I do not know.

The case reported shows the necessity of an early extensive operation for the mastoid condition, especially of the fulminating variety and especially during an influenza epidemic in school. It shows that there can be present or later develop a perisinus infection after the ordinary mastoidectomy had been seemingly thoroughly done, and that a week after a second operation thoroughly exenterating the mastoid and exposing the sinus wall the lateral sinus may become thrombosed.

The surgeon should remember that sinus thrombosis is an infected obstruction in the vascular system at a most dangerous point, endangering the blood current downward, the meninges and encephalon in close apposition—that it is nature's attempt, (and successfully in half the cases without operative assistance,) to forestall a general infection which may terminate in septicemia and metastasis, and in sixteen per cent fatally; and in order to give his patient the best fighting chance he should have associated with him an internist who is trained to observe the picture from a somewhat different angle, who can watch and assist the all important kidney and bowel functions and whose general training better fits him for the internal treatment than does that of the surgeon.

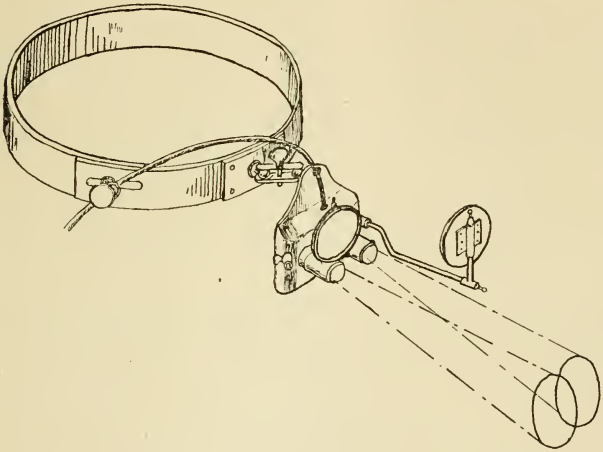
Dr. Briggs, Chairman: If there is no further discussion, there will be an opportunity given for the exhibition of instruments. Dr. Reaves has a headlight which he wishes to show.

Dr. W. P. Reaves, Greensboro: Mr. President and members of the Section: This is my own make, so it is crude. I have just gotten it completed. Nicety in its mechanism and manipulation have not been secured, but will be. This is a periscopic headlight, or at least, that is what it is intended to be.

Its greatest use is in nose and ear work. I asked a student what he got in New York in ethmoid work. He said that the teacher said it was too hard to do for charity, too dangerous for a student to do. Everyone had to learn it for himself—I know myself that it took me about six weeks to learn whether or not the drum was bulging, because there was no way to demonstrate it. The object with this headlight is to let the student see what you are doing. In this way, sinus work, which is today about where tonsil work was ten years ago, can be developed. It has not been developed to the point to which the rest of the eye, ear, nose and throat work has been developed. It all hinges on sinus work. Many obscure eye cases are due to sinus trouble, and it must be relieved in order to relieve the eye trouble. To do this

we shall have to develop a way of teaching. That has been the stimulus which caused me to work on this.

The first thing which I had to do was to get it light enough to wear. It can be made lighter yet. The second thing was to get a source of illumination that was good, to get it as good as the best, or to get it better than the best. I used to think that when I got a big mirror to see in little places I got the full illumination; but this has taught me that when you look into a quarter-inch opening ten inches away you can get as good results from a small mirror.



These lights will be made so that you can rotate them and put the filaments vertical. Make them parallel and you will have the inner half of both lights for your lighted space. Through the opening between the lights you will see a place about one and one-half inches in diameter which will force you to look between the two filaments. The rays diverge here in proportion to the size of these and the focal point. When the rays pass the focal point in the ordinary mirror they diverge. So this will give you a little larger illumination three inches back than where it goes through. So we get a double illumination in the center of the field of operation. With the head mirror you have continuous motion, moving with the patient's to keep the focal point. In this you can see only the lighted spot, so the light beats you to the field of operation. What you see in the nose is how much of the picture will be reflected back depends upon the size of the cavity.

The next question, then, is the source of illumination. You can use batteries or use a rheostat to get any illumination you want. If you use a battery when it gets weak you do not get good illumination. So you should have two types of bulb, one for the battery and the other for the rheostat.

If you can operate with it as easily as with a regular head mirror without the neck tire you have with the head mirror, then it is better.

The cut of the instrument shows headlight with periscope.

DISCUSSION

Dr. Briggs, Chairman: It seems to me that this light has some good points about it. I find myself depending on fewer and fewer instruments, as I think it is well to use as few sources and means of illumination as possible. Until recent years I procured every light that I could find, both abroad and in this country. But for the past ten years, except in bronceoscopic work, I have used the usual head mirror exclusively. However, I hope that Dr. Reaves will proceed to perfect his light. Its principle is correct and I would recommend it especially to those who feel that they need something other than the concave reflecting headlight.

Dr. Briggs, Chairman: I hope no other chairman has had the trouble I have had in getting up a program. I am very well pleased with it, however, leaving off the last number. I began work on it early, perhaps too early. In November I sent letters to fifty-three men in the State who I thought were engaged in this work, asking each to read a paper. By January first, I had received two replies, one consenting to prepare a paper and the other sent regrets. On January first, the one consenting changed his mind and sent his regrets. About five weeks ago I wrote to all who had not responded and very kindly offered to let them in on the program, even at that late date. As a result I secured the papers which you have kindly listened to, and which I am quite proud of and I know that all here feel as I do about the program. I am sure that everyone has the welfare of this Section at heart, but we are showing it in a very poor way. I am exceedingly proud of this Section's work, and I have been watching with a great deal of pleasure the growth of the men in eye, ear, nose and throat work in our State. No section is making more rapid progress. I would like to encourage you to offer papers for the Ear, Nose and Throat Section of the American Medical Association and for the Section on Ophthalmology. There are other Societies to which many of you should belong. I speak especially with reference to the American

Academy of Ophthalmology and Otolarynology, and the American Laryngological, Rhinological and Otological Society, the latter having about three hundred members. While I do not speak officially, I am sure that they stand ready to welcome any good man from any State, and I shall be glad to lend any influence I can to help a meritorious man.

Dr. J. G. Murphy, Wilmington: There is one thing about which I want to speak. I was glad to hear you speak of the American Society of Laryngology. There is another society which would interest the men here, and that is the American Academy of Ophthalmology. That meets in Philadelphia in October, and it is one of the best societies I have ever attended. It meets there the week just preceding or succeeding the American College of Surgeons. If any of us can attend those two meetings we shall certainly get help, I am sure. It is a society from which I get a great deal, and if all of us can attend we shall do well to go.

The following motions were adopted by the Section:

Moved, that a member who has his name on the program must appear and read the paper; otherwise the title of his paper will not only be excluded from the Transactions, but his name will be excluded from the program for two years, unless he gives a valid reason for his absence. However, he may have his paper read, if unavoidably detained.

Moved, that the present Chairman of the Section on Eye, Ear, Nose and Throat appoint a committee of three men from this Section, himself as Chairman, to confer with the State Board of Health and thresh out the matter of school clinics as conducted by the State Board of Health and arrive at some satisfactory conclusion.

The Chairman appointed C. W. Banner, of Greensboro and Dr. Matheson of Charlotte, as the other members of the committee.

Dr. J. M. Parrott, of Kinston, was nominated by Dr. Brawley as chairman for the next year. This nomination was seconded by Dr. Murphy, and Dr. Parrott was elected.

Dr. T. C. Quickel, of Gastonia, was nominated for re-election as Vice-Chairman, and Dr. H. L. Sloan, of Charlotte, for election as Secretary, and both were elected.

THE PRACTICE OF MEDICINE

Dr. F. M. Hanes, Chairman, Winston-Salem

HEART DIAGNOSIS

Thompson Frazer, M. D., Asheville

Our conception of many diseases has undergone considerable changes during the past few years; in no class of diseases, perhaps, have our ideas suffered greater changes than in affections of the heart. Twenty-five years ago it was the valves upon which our attention was chiefly centered and our every endeavor was directed toward discovering a leak or an obstruction which showed itself by a characteristic murmur; this accomplished, we attempted a diagnosis, the question of prognosis being accorded but scanty attention, while the subject of myocarditis was scarcely dealt with at all.

Today, diagnosis (though naturally as essential as it ever was) is not looked upon as of much value unless it carries with it some element of prognosis; for what we are concerned with is what the heart can do, and how long, in all probability, it may be expected to do it. We are not so much interested in the fact that this or that valve is stenosed or leaky as we are of the efficiency—under these conditions—of the muscle that pumps the heart throughout the body; for it is well recognized that a murmur is often insignificant prognostically, also that a damaged heart may present few or no physical signs and may be readily overlooked unless a careful history be taken and the heart's functional efficiency be tested by appropriate exercises. Thus, the emphasis has been shifted from the endo- to the myo-cardium, while diagnosis has been forced to include—to some degree, at least—prognosis.

In arriving at a diagnosis of heart disease there are three modes of approach all of which will give us valuable information; these are (1) The history; (2) The physical examination of the heart; (3) Testing the cardiac efficiency.

In this brief paper I can but touch upon the subject of history. By history I mean not only the history of rheumatism, syphilis and other infections, and of arterio-renal conditions that are so commonly associated with heart disease, but the history of the patient's restriction in his power of response as indicated by the presence of subjective symptoms. According to Mackenzie the individual always has symptoms before he has signs and these symptoms are never absent

when the heart's efficiency is in any way affected; the common symptoms are breathlessness, fatigue and pain. The importance of obtaining a careful history, therefore, cannot be overemphasized.

Let us now turn to the physical examination of the heart, always bearing in mind that the function of the heart depends upon myocardial integrity and that valvular disease is serious in the degree that it indicates myocardial disease. The abnormalities which, according to Lewis constitute the chief reliable signs of heart disease are readily elicited, several of them by the simple procedure of inspection and palpation; they are as follows:

1. Distinct overdistension of the veins of the neck.
2. Definite signs of an enlargement of the heart.
3. The presence of an unmistakable thrill.
4. An irregular heart action which is maintained on exercise (the heart rate being high).
5. An aortic diastolic murmur.
6. A diastolic rumble at the apex.
7. Widespread arterial disease or a persistent high blood pressure.

1. "Overdistension of the veins of the neck," says Lewis, "is one of the most important physical signs which we possess of heart disease; it should not be, but often is neglected. . . Engorgement of the right heart is never present when the veins show no increase of pressure."

2. Palpation gives us valuable information: placing the whole hand over the precordium we not only note the approximate rate of the heart beat, its regular action and the presence of excessive throbs or thrills, but we are able usually, to locate the maximal impulse which ordinarily lies between 3 and 4½ inches from the midline. This impulse is usually distinctly palpable as a more or less definite thrust and this is the best guide we have to the left border of the heart and (if the heart is not displaced) to the size of the heart. By the simple procedure of locating the maximal thrust we acquire some very important information.

3. Palpation may also discover at the base of the heart, a systolic thrill suggestive of aneurism, or the diastolic thrill of aortic insufficiency; it is the thrill at the apex, however, that is of the greatest interest as not uncommonly mitral stenosis may be strongly suspected from the presence of this sign. Valuable as this sign is it is not wise to rely on it in the absence of other signs as it is not uncommon to find thrills in thin-chested individuals, especially when the heart action is vigorous.

4. The irregular heart action due to auricular fibrillation is distinguished from irregularities of less significance by being maintained on exercise. This is a serious arrhythmia, usually, indicating as it does, myocarditis in most instances.

5. The aortic diastolic murmur is usually soft and low and heard best in early cases to the left of the sternum; the vascular phenomena of aortic regurgitation—capillary pulse and characteristic blood pressure—should also be looked for.

6. The diastolic murmur of mitral stenosis is not always easy to detect; owing to its inconstancy efforts should be made to elicit it where there is a loud, snappy first sound at the apex, or an accentuated pulmonary second. It is sometimes heard best when standing, quite frequently only when recumbent, it may be brought out by exercise and having the patient lie on the left side.

7. Widespread arterial disease or high blood pressure means a diseased myocardium—the blood pressure, however, must be persistently high to have this significance.

It is apparent that the signs just discussed—venous distension, enlargement, thrill, diastolic murmurs, irregular heart action, arterial disease and high blood pressure—are important in that they are found in conditions associated with a damaged myocardium; thus even in the earlier stages of mitral stenosis or aortic regurgitation the myocardium cannot be regarded as sound; in all cases of aneurism or chronic renal disease the myocardium is damaged; and when the heart is definitely enlarged a myocardial defect may be assumed.

I can refer but briefly to one method of examination that is not utilized as often as it should be, namely, x-ray examination. This is of value in aiding us to detect aneurisms and dilitations of the aorta which are apt to be overlooked in the physical examination. Moreover, corroborative evidence of enlargement of the heart may often be furnished by the fluoroscope. More important, perhaps, is the information afforded us in those cases where the clinical diagnosis is not supported by x-ray evidence; where, for instance, a heart that is assumed to be enlarged is found, on fluorscopic examination to be of normal size.

Having taken the history and examined the heart, with the body at rest, the next step is the estimation of myocardial function as shown by the heart's power of "response to effort" for it is evident that an examination made with the body at rest affords little opportunity for estimating the reserve force of the heart. Various tests have been devised for estimating cardiac function; one of the most simple ones, which was adopted as the routine test in the army, consists of having the patient hop 100 times on one foot, noting how long a rapid pulse

and dyspnoea persisted; neither should be present after two minutes. It is true that there is no definite amount of work which we can set up as a standard; it is evident, for instance, that a trained athlete could take a greater amount of exercise than one who is not in training so that considerable latitude must be allowed in the interpretation of such tests. I believe, however, that the exercise tests are of great value in estimating the functional capacity of the heart; in addition to discovering a limitation of the power of response they are also of value in bringing to light a sign that was perhaps non-existent before exercise. No examination of the heart is complete unless an attempt has been made to elicit the heart's response to exercise.

I cannot conclude without saying a few words on the subject of prognosis for interesting as it may be for the physician to arrive at a correct diagnosis, this diagnosis, from the patient's point of view is incomplete; for he does not so much care what the affection of the heart may be as he does how will it affect his duration of life and his working capacity. Difficult as it is, and at times impossible to make a satisfactory prognosis there are certain principles that will help us in arriving at a conclusion.

In all cases, the condition of the myocardium as shown by the manner in which the heart carries on the circulation, is the keynote to prognosis. It is obvious that the patient whose rest force is encroached upon, that is, who has symptoms of heart failure—breathlessness, cyanosis, venous distension, œdema—which persist despite rest, has but a little time to live. Before giving a prognosis in the case of a patient who shows limitation of reserve force only, that is, who has symptoms only on exercise, the prognosis must be deferred until rest has been enforced. Many cases may recover more or less completely from their first attack of heart failure if rested, while their ability to remain free of symptoms thereafter depends to a great extent on their occupation and financial condition and as to whether a life can be led that does not tax the heart beyond its limited power of response. Thus, a heart with lessened reserve force may be amply able to maintain an efficient circulation and permit the subject to live a useful life, although a life in a lower plane of activity.

In mitral stenosis, which is usually a steadily progressive lesion, there is, however, great variation in its rate of progress and the prognosis depends to a large extent on the rate of progress. Thus if we find that a middle-aged person with good response to exercise has a history of rheumatism dating back to childhood, we are probably dealing with a case which is stationary or only slowly progressive, and the outlook for life and usefulness may be said to be fair.

In aortic insufficiency the chief signs that indicate a considerable involvement of the myocardium are a greatly enlarged heart and a pulse of extremely collapsing character; attacks of angina pectoris and a limitation of response to effort are also unfavorable symptoms. The etiology is also of considerable importance: it has been found that cases attributable to rheumatism are less rapidly progressive than when syphilis is the cause; in the syphilitic cases the condition is one which progresses with great rapidity and the blocking of the coronaries may seriously interfere with the blood supply to the heart.

In concluding this paper I am conscious of its shortcomings: I hope, however, that I have emphasized sufficiently the importance, in heart cases, not to diagnose merely a valvular lesion but to estimate so far as it is possible with the means at our command, the functional integrity of the heart muscle as well.

THE ESTIMATION OF CARDIAC COMPETENCE

James M. Northington, M.D., Charlotte

Numerous attempts have been made to evolve methods of investigation which would yield definite knowledge of the extent to which any given heart could be depended on to discharge its function. Among the most note-worthy of these is the study made by Barringer (1) in 1917. His method possessed the great advantages of simplicity, and accuracy in measurement of work for testing reserve power. Taking the systolic blood pressure at rest, submitting the subject to a definite amount of exercise, then repeating the blood pressure reading, at periods 30, 60 and 90 seconds afterward, he found that the normal hearts raised the blood pressure and increased their rates after such exercise, that up to a certain point these results were in direct proportion to the amount of exercise, and that rest brought a prompt return to the first readings. Work beyond this point produced a curve of a different nature, the blood pressure not reaching its height till 50 to 90 seconds after the cessation of work, at which time the pulse rate was dropping. This delay in the systolic rise was taken as an index of the heart's reserve power.

Dumb-bells were used for exercising. It was found that normal men in the third decade were capable of expending 4,600 foot pounds of energy in 60 seconds, without bringing about this delayed systolic rise. Patients with varying grades of cardiac insufficiency required much smaller amounts of work to delay the rise, and, in some marked cases the pressure fell during even very light exercise. Especial

attention is called to the fact that identical results followed no matter what groups of muscles were used.

His statement that "the cardiac reserve power may be very low in a man with a perfectly normal heart, as well as in a man with a diseased heart," is one with which we might easily disagree. In fact it would seem to strike at the basis of his method. Though he does not say anything in explanation, it must be that he means to say that the delayed systolic rise may be an indication of a general asthenia, in which the heart muscle shares, and not to definite pathology in the heart muscle. But this would certainly not be "a perfectly normal heart."

Working under very favorable conditions in a research laboratory, Schneider (2) worked out a rather ingenious scheme for expressing a cardio-vascular rating mathematically. Obviously, could this be done accurately, it would be a marked improvement on present methods, the results of which must necessarily vary with the personal equation of the examiner, and with the reliability of the information obtained from the person under examination.

He states that "the tests here discussed should not be confused with functional heart tests. We are concerned with the cardio-vascular changes only so far as they give evidences of fatigue and health changes in the body." And that is just what we, as physicians and as examiners for the government, are concerned with.

He takes into consideration the pulse rate as influenced by posture and exercise, and the blood pressure as influenced by posture. Six sets of observations are made, namely: reclining pulse rate, increase in pulse rate on standing, standing pulse rate, pulse rate immediately after exercise, time necessary for return to normal, and systolic pressure standing as compared with reclining. The figure 3 is used arbitrarily to express a perfect score. Thus it is possible for a grade of 18 to be obtained.

Only 6 of 54 aviators examined obtained a score of 10 or better, which makes it appear that probably the sights are set too high. Forty-six who scored 9 or less were submitted to the ordinary methods of examination and abnormal conditions found in 30. Of these 30, in the cases of 16 such explanations as excessive smoking, recent spree, nervously unbalanced, and tonsil infection were made. Obviously so wide a margin between the possible score and that obtained by the great majority of this group of picked men, leaves much to be desired. Also the failure, for the reasons given, of the 16, suggests that careful consideration of possible interfering conditions of a temporary nature

would be urgently necessary in interpreting results obtained by this method.

Possibly this idea may be extended, results of other methods of examination evalued and added until we are able to express the functional competency of the heart in numerals which will not be misleading. But that is not yet; and we can at present make use of these principles only as supplementary to a thorough general examination.

My own interest in this subject has been greatly increased by my problems as cardio-vascular examiner of soldiers and ex-soldiers. Difficult enough always, many factors peculiar to these cases add to the difficulty. In the cases of soldiers histories and subjective symptoms were practically worthless. By far the greater number who had gotten to camp were so anxious to stay in, and a small minority so fearful that they would not get out, that they gave answers according to their individual conceptions of the best means of achieving their desires, with little regard for the facts. And the same consideration often further confused the picture in both classes, by causing a rapid heart action, which was by no means normal for the individual.

In the examination of ex-service men, I have elicited many histories of this kind: At some examination, either preliminary to induction into the service, while a patient in army hospital, or preliminary to discharge, an examiner made a second examination, called another examiner, or in some other manner conveyed to the soldier the idea that he had an abnormal or diseased heart, although he was discharged as normal.

Another serious interfering factor in many instances was the fact that the applicant had been examined subsequent to discharge and told, on the unsupported evidence of a systolic murmur, that his heart is seriously diseased. Others give a history of having received a blow over the heart; others of having been gased, thrown by a horse or suffered other violence, which could not be expected to play a major role in the etiology of cardiac disease. A very few are undoubtedly deliberate malingerers; but few charges are more difficult of substantiation and I have not been able to bring myself to the point of regarding it as proven against a single individual examined.

Of course it is in the cases with few or no objective symptoms to explain the subjective, that the most puzzling problems confront us. My most gratifying results have been obtained by following a routine based on the army cardio-vascular examination.

In every case presenting itself for cardiac study, the principal questions to be answered are:

1. Is the heart actually competent?

2. If competent, what is the likelihood of its remaining so?

3. If incompetent, what is the likelihood of its regaining its competency?

We should address ourselves to the task of answering these questions with the idea clearly in mind that the state of the valve or the rate of muscular action are important only as they bear on functional competence. I proceed with the time-honored routine of history taking and a careful general examination.

History—To a definite history of acute rheumatic fever, repeated attacks of tonsilitis, or syphilis, great importance is attached.

General Examination—Displacement of the apex beat as much as two c.m. to the left; enlargement of the area of deep cardiac dullness, as shown particularly by direct percussion; or the perpendicularly hanging "drop heart," as shown by percussion and x-ray examination, may be taken as suggestive of incompetence. They serve to indict, but must be supported to convict.

Much information may be gained from a study of the intensity of the heart sounds, but it must be remembered that in many apparently normal individuals, either because of the inter-position of fat or from some other cause, the sounds are very faintly heard.

Any irregularity of the heart beat is to be regarded as suspicious and requires explanation. Only when the reaction to exercise is perfectly normal and there are no other evidence of cardiac abnormality, may we pass it as probably of no significance.

Murmurs are perhaps the most outstanding signs of cardiac disease. And this probably accounts for the undue importance attached to them. Since the practice of auscultation detected the presence of murmurs, it has been recognized that they did not necessarily indicate the near presence of death or even the existence of grave disease, also that disease of the myocardium constituted an important part of the case.

A standard text of 1848 (3) says "diseases of the valve and orifices of the heart are intimately connected with each other, sometimes as cause and sometimes as effect and are often associated, without our having precise knowledge of the order of causation, with hypertrophy, dilatation, aneurism and softening of the heart itself." In 1868, Flint (4) stated that "lesions involving obstruction or regurgitation or both, do not, as a rule, occasion much inconvenience until they have led to enlargement;" and "the physician should be careful not to attach undue importance to the presence of one or more organic murmurs." And Osler constantly taught that with an apex beat normally situated and a regular rhythm, the auscultatory finding could be prac-

tically disregarded. Certainly this is true if these findings be systolic murmurs. The hearts of patients showing constant diastolic murmurs, should always be regarded as at least potentially incompetent.

We commonly err not only in giving too serious a prognosis and unduly curtailing the activities of a patient having a murmur; but on the other hand, in treating as trivial symptoms referable to the heart, when we fail to find the murmur. In a great majority of deaths due to cardiac disease, the end is brought by failure of the myocardium, in many instances the valves being found normal.

The heart rate is taken (1) after five minutes rest recumbent or in an easy chair, (2) after springing on the ball of one foot one hundred times, raising shoulder 4 to 6 inches, and (3) after 2 minutes rest. If there is any real suspicion of severe cardiac disease, this exercise is either dispensed with or the patient is instructed to cease exercising on the appearance of any discomfort. In few cases, when the resting rate is in the neighborhood of one hundred, is it found necessary to go through with the exercising test, an increase in rate of more than 50% is viewed with suspicion; but more important is a failure to return to its rest rate after two minutes of recumbency.

The systolic and diastolic blood pressure is taken under the same condition. The amounts of exercise varied so greatly in those presenting evidences of incompetence, that it would be impossible to state from these examinations what could be expected in different diseased conditions. Roughly, it may be stated that a normal, healthy heart, you may expect a rise of from 15 to 25 mm. in the systolic, with a return to approximate normal in two minutes. The diastolic is little affected.

The facies often show an anxious or distressed expression, difficult to describe, or to assume. The appearance of any noticeably rapid breathing on exercise insufficient to increase the systolic pressure as much as 15 mm. has been taken as indicative of some degree of incompetence. Pulsations in the neck vessels are often of the greatest importance.

Laboratory.—The Wassermann reaction should be obtained in every case showing signs of cardiac disease. And especially in those past middle age, it should be remembered that mercury and potassium iodide sometimes produce startlingly good results, even though the Wassermann be reported negative.

The x-ray affords aid in most cases. In patients who have a specific history it often enables us to decide whether the most urgent symptoms are cardiac or aortic in origin. Also it frequently shows that

the heart is very different in size from that determined by other methods of examination.

SUMMARY

1. The estimation of the functional competency of a heart cannot be made precisely and stated numerically with anything approaching accuracy by any system which has been worked out to date.

2. We can best obtain information on which to make this estimate by taking the best history possible, giving the patient the careful general examination, making special observation of cardiac rate, rhythm and blood pressure under conditions of rest and exercise, supplementing these with special laboratory examinations, as Wassermann and x-ray in doubtful cases, and as they become available the electrocardiograph and other apparatus of precision.

3. Pronounced murmurs may exist in the absence of heart disease, and grave heart disease without a whisper of a murmur.

4. Laboratories supply valuable aid; but here, as elsewhere, they should supplement and not be substituted for, careful clinical study.

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DISCUSSION

Dr. F. M. Hanes, Winston-Salem: In regard to perpetually irregular hearts I have seen patients with this form of irregularity carrying on their daily activities without a great deal of inconvenience. A physician of my acquaintance has had a perpetually irregular heart for 10 years and has not been limited in his activities to any great extent. It is well to point out that digitalis will not correct such perpetual irregularity with certainty.

I wonder how many have observed that the diastolic pressure by the auscultatory method not infrequently goes to readings of 15 to 0. If the fourth phase is taken as the diastolic criterion a good many patients would have no diastolic pressure. This is a curious and unexpected phenomenon and I suggest that it be borne in mind for observation by others.

Dr. R. McBrayer, Sanatorium: Based on the work of MacKenzie at the University of Pennsylvania, Landis is inclined to the view that the first change we get in myocardial weakness will be a slight rise in

systolic pressure with half that amount of rise in the diastolic pressure, on rising from lying to standing position. So far as MacKenzie was able to determine on several hundred cases, mainly athletes, their systolic pressure after reclining several minutes would fall one point on standing, while Landis states that cardiac weakness showed an increase in systolic pressure.

As to Col. Hanes' finding of the very low diastolic pressure: I have observed very low diastolic pressure in some readings and I have found it was my own error; that I was pressing too hard with my stethoscope, which was producing the same sound as is produced by the collapsing of the blood vessel with the blood pressure cuff. Upon easing up on the stethoscope I would find it would be a higher reading. It seems that some arteries are very easily compressed sufficiently to produce true blood pressure sounds.

Dr. Carl Judd, Raleigh: In connection with what has been said I had an important case which came under my observation yesterday. A man thirty-seven years of age, giving a history as something like this: About ten years ago he had a mild attack of rheumatism which lasted only a short time and he was up and about and able to go about with his work again. A little over a year ago he had an attack of influenza. After recovery from that he was not quite so well as before and a few months later, about the first of January of this year, he had another attack of articular rheumatism, since which time he has never been very well, in fact, confined to the house mostly but not in bed. About two weeks ago he was taken rather suddenly with mental symptoms. An examination showed this fellow had an enlarged heart, with both diastolic and systolic murmurs. His blood pressure systolic was 108, diastolic as low as the instrument would record. His urinalysis showed marked albumen present, the Wasserman is in the process of being made today. I wanted to report this case in connection with the papers which have been read.

Dr. Wm. Allan, Charlotte: I am glad to see the day come when the diagnosis of cardiac conditions will not depend on what murmurs are heard. Certainly the rational way to find out what a heart can do, is to try it out and see, as in the various exercise tests. However, I think any conclusions drawn from the behavior of blood pressure on changing position, must be very uncertain. On changing from the prone to the erect position the blood pressure may go either up or down, depending largely on the irritability of the vasomotor mech-

anism of the splauchnic vessels, which usually over-compensates the shift in hydrostatic pressure.

Dr. Thompson Frazer: I have only to say that in diagnosing heart disease every possible means should be used. I think Snyder's test is of value. We should, however, depend not upon one test alone. As Dr. Allan has said the blood pressure reaction is uncertain and I do not think anybody knows what the blood pressure should do normally in changing from one posture to another. Tait Mackenzie says there is very little variation. Norris says an increase of ten beats on standing, Lewis, a decrease of ten points on standing, so at present the value of some of these reactions is undetermined. We simply have to take every means of examining the heart and testing its efficiency, and I think the x-ray examination is especially important as we may find a dilation which is unsuspected on physical examination.

REPORT OF THREE CASES OF INTERESTING BLOOD CONDITIONS

R. L. Felts, M. D., Durham

Leukemia and other closely allied diseases of the blood attended by lymphoid hyperplasia are relatively rare and despite the large amount of attention that has been given this subject, the etiology of this group of diseases is still unsolved.

According to one view, leukemia is a malignant disease of the blood, forming tissues, with an escape of neoplastic cells into the circulating blood, differing from the ordinary neoplasm, in that it has no local origin, but arises from all the tissues belonging to a certain system, i. e., from those which give rise to certain types of white blood cells.

An infectious theory of leukemia is supported by the fact that the acute type of the disease usually runs a course strongly suggesting an acute infection with high fever, prostration, and a hemorrhagic tendency.

A rather interesting and not illogical suggestion by one writer is that since lymphoid tissues are so frequently exposed to the action of bacterial toxins and irritants brought to them in solution from absorptive surfaces of vast extent, and since, in these circumstances, they so often display a definite tendency to respond to irritation by hyperplasia of their cellular constituents, it is not improbable that a like reaction is to be held responsible for the inception of certain types of diseases characterized by overgrowth of lymphoid cells, local or general. If the irritant is withdrawn after the lapse of a reasonable

interval of activity the cellular action in the lymph node ceases, and the hyperplastic process ceases. If, however, the irritant continues to act it appears to be inevitable that the cellular response will also continue.

Finally, a time is to be expected at which either as the result of activity of the same irritant, or more probably as the result of the formation of a self-perpetuating toxin, in the lymph node concerned, the reaction is converted into a process characterized by indefinite hyperplasia.

In the absence of a better explanation, this is not an illogical method of accounting for the origin of the lympho-sarcomas, and other similar otherwise inexplicable lesions of lymphoid system, including not only certain localized lymphoid hyperplasias, but chronic lymphatic leukemia, pseudo leukemia, and the like.

With this brief introduction of the subject, I wish to report the two following cases of generalized adenopathy, but with very different blood pictures.

Case 1.—J. W. T.—White; male; farmer; age 46. Admitted to hospital on Feb. 22, 1921, with the following history:

F. H.—Father living and well, age 67. Mother living, poor health. Two brothers and one sister living, and in good health. One brother and one sister died at 19 years; tuberculosis. Patient is married, has six children living and well; two died in infancy.

P. H.—Had usual childhood diseases. Influenza, 1918; rheumatism at 18; again 1902. Present illness began in August, 1919, when he noticed a painless hard swelling in left inguinal region, soon after noticed similar swelling in glands of neck, next, axillary glands became swollen.

About one year ago patient became very weak, and heart gave him trouble, with shortness of breath, rapid pulse. Appetite remained good. Bowels regular.

Physical Examination:—Fairly well nourished, anemic adult-male, marked oral sepsis, with a few defective teeth. Heart rate rapid, regular, blowing systolic murmur at apex, transmitted to left axilla. Systolic pulmonic murmur not transmitted. Heart otherwise negative. Lungs negative. Abdomen negative, except for palpable spleen, well below costal margin. Cervical, axillary and inguinal glands markedly enlarged, easily palpable, fairly firm and discrete. Skin pale, rather waxy and lemon tint. Mucous membranes very pale. Eye examination shows mild degree papallitis in both eyes, numerous hemorrhages in both retina. Urinalysis—trace of albumin, many granular casts. Otherwise negative. Kidney function, 53%, Thallein, two hours.

Blood Examination:—During stay in hospital red cell count varied from 1,760,000, highest, to 1,320,000, lowest. Hb. 21% to 16%. Leucocyte count on one occasion, 540,000 and another 764,000. Practically all white cells were small lymphocytes. Blood Wassermann negative. Patient only remained in hospital a short time.

Diagnosis:—Chronic lymphatic leukemia, and mitral insufficiency. No improvement, except perhaps a slight reduction in the size of the glands.

A very interesting situation has arisen since this patient returned home. He has developed smallpox, and recovered. His leucocyte count on April 24th, was 210,000, glands smaller, and feeling generally better.

Case 2.—J. B. A.—White; male; farmer; age 26. Admitted from the country with a suggested diagnosis of typhoid fever. (His wife had died the day before with that disease.) Family history and past history, negative.

Present illness began two weeks ago, with slight pain when swallowing—had pain when chewing, and soreness around lower front teeth, gums tender, has had slight headache, malaise, chilly sensations, appetite has been good, bowels rather loose.

Physical Examination:—Fairly well nourished, slightly anemic. Teeth all bad, gums swollen and bleeding, evidence of general oral sepsis, tonsils slight enlarged. Chest—harsh respiratory murmur throughout chest, no areas of dullness. Heart, negative. Abdomen, negative, except for slight gurgling in right iliac fossa. Small petechial rash over chest, abdomen and all extremities more pronounced on flexor surfaces. Large purpuric spots on inner surface of left knee. Cervical and inguinal glands enlarged. Urinalysis, negative. Blood examination on admission to hospital showed a leucocyte count of 2,400—differential poly. 35%—transitional, 9%— lymphocytes, 66%. During his stay in hospital his leucocyte count went as low as 1,800, differential remaining relatively the same. The red count on admission was 4,480,000, hb. 90%. The count and hb. went steadily down, reaching 2,400,000, and hb. 40%, before leaving the hospital. The following is a brief review of the progress of this case:

Upon admission we thought we might be dealing with a case of typhoid fever, as his wife had just died of that disease. The patient was running a temperature curve not unlike typhoid, with headache and malaise, and leucopenia, but typhoid was soon ruled out by blood culture and widal—both negative. Blood Wassermann was also negative. The enlargement of the cervical glands it was thought, might be due to the very bad condition of his mouth. Tuberculosis was next considered. While there was no definite physical signs in chest, suggesting tuberculosis, his chest was x-rayed, with a doubtful report of evidence of a chronic tuberculous process involving both lungs. His larynx was examined by Dr. Fassett, who reported quite a large ulceration, probably malignant—several smears were taken from the larynx, and stained for T. B., with negative results. After a week's observation it was thought that we might be dealing with Hodgkin's disease. One of the glands of his neck was excised, and the following is the report of Dr. Coppridge: "Tissue from lymph node of neck: A malignant growth, probably lympho-sarcoma rapidly growing. The blood vessels show endothelial prolifferation with degeneration of the capillary walls, much free blood throughout gland." It is frequently a difficult matter to differentiate lympho-sarcoma and Hodgkin's disease. During the last week of his stay in the hospital the patient has been bleeding profusely from his nose and larynx. The patient was allowed to go home upon his urgent request, and he died soon after. Diagnosis:—lympho-sarcomatosis. No improvement.

Case 3.—The third case I have to report is one of anemia, in an infant, born Jan. 24th, 1921. The delivery was spontaneous—mother in good health. No antepartum bleeding. Mother has given birth to three other children, all healthy. No abortions, or miscarriages. The baby (female) weighed 8 pounds at birth, was vigorous, and cried lustily. She appeared rather pale, but there was no

evidence of bleeding either open or concealed. She nursed well, and had a normal gain of weight. She became more anemic, but there was still no evidence of loss of blood. Stools were examined for occult blood, with negative findings. Blood was examined at the end of the first week, and showed a leucocyte count of 36,000. Red cells, 1,350,000, and hb. 25%. There were numerous nucleated red cells. The red count fell as low as 1,030,000, and hb. 21%. Then steadily went up, and before leaving the hospital, had gone to 2,000,000, and hb. 35%. The physical examination of this baby revealed only the rather marked pallor of skin and mucous membranes, with a slightly enlarged spleen.

This case bears a rather striking resemblance to von Jaske's anemia, or pseudo leukemia infantum, being characterized by marked reduction in red cell count, with numerous nucleated red cells. A color index corresponding more or less to the reduction in red cells. A moderate degree of leucocytosis and enlarged spleen, with absence of lymphoid hyperplasia, and finally, a tendency to recover. This baby is now three months old, and has a red count of 3,410,000, hb. 65%, and leucocyte practically normal.

DISCUSSION

Dr. W. M. Coppridge, Durham: It was my pleasure to assist Dr. Felts in the laboratory side of these three cases. I want to say that I found them very interesting and very difficult of diagnosis. I was particularly interested in the case of lympho-sarcoma. This seemed to be more rapidly growing than the usual form of the disease. The puzzling thing was the history with which the patient came in. The wife was buried the day he came in, she having died with typhoid fever. The preliminary examination with the negative blood culture and the symptoms of typhoid made the case more puzzling. The x-ray reported it tuberculosis. After the removal of one of the glands of the neck a malignant tumor was found. The leucocyte count was 1,800, the lowest I had ever seen. In an examination of the gland we found blood throughout the tissues around the gland as well as in the gland itself.

The last case, the case of the anemia of the baby, was interesting because of the large number of nucleated red cells in the blood. There were numerous nucleated blood cells. It certainly appeared from that point that it was probably a severe hemorrhage with regeneration. The enlargement of the spleen with leucocytosis would classify the case, I think, as pseudo leukemia infantum.

I found all the cases very interesting from a laboratory standpoint.

Dr. F. M. Hanes, Winston-Salem: Only a few days ago I saw in consultation a boy of 17, the onset of whose illness was 6 weeks previous. His white count was only 6,000 but the differential count was 87% mononuclear. The striking feature of the case was the

intense and rapid destruction of the red cells which had led to a red count of 2,000,000, hemaglobin of 30. The case was obviously one of acute lymphatic leukemia. Our knowledge of the leukemias, and closely allied diseases, is still in a very sketchy condition, and I for one am not nearly as confident of diagnosis as I was 10 years ago. Experience has shaken my faith in the possibility of accurate classification of many blood pictures.

THE EARLIER RECOGNITION OF TABES DORSALIS

Edward J. Wood, Wilmington

One of our most distinguished American neurologists (Starr) in his text book begins an account of the physical signs of locomotor ataxia by the sentence "The physical signs in the early stage are the loss of patellar tendon reflex, the loss of the pupil reflex to light, and a contraction of the pupil." When these things occur the diagnosis is superfluous and any benefit to accrue from it is so trifling that it need hardly be mentioned. The utilitarian at once asks why the diagnosis when nothing can be done to relieve the disease? Without granting that nothing can be done, for this is a debatable point yet to be settled, in spite of the prevailing pessimism it must be recalled just how much a poor tabetic is often made to suffer because his sensory symptoms unattended by the above-mentioned classical symptoms are falsely interpreted. My first interest in this matter was aroused by Dr. Muller in Munich. Well do I recall the gleeful manner in which he showed us a patient with a long abdominal scar from the surgical procedure done to discover the cause of obscure epigastric pain. It is needless to say that the surgeon did not discover the cause of the pain and the patient continued to suffer on. Gordon Holmes tells of a patient whose abdomen had been opened five times to determine the cause of epigastric pain which at last was shown to be due to the gastric crisis of tabes.

In one of the great London hospitals a student interested in the study of sensation in the normal and in various neurological conditions was startled to find that numerous cases of gastric classification responded to the finer and more delicate tests of tabes. In one case particularly the diagnosis was carcinoma and it was based on careful x-ray work by a very keen house physician. None of those classical symptoms recorded above by Starr had occurred but sensory investigation proved to the satisfaction of any modern neurologist that the patient had early tabes and his gastric distress was due simply to gastric crisis. In the same ward at the same time was a man labeled

ulcer of the stomach. He was receiving the full Sippy diet. Again, his neurological picture presented none of the symptoms counted early by Starr but a study of his sensation proved conclusively that gastric crisis was the cause of the pain. The important point apparently overlooked in this case was the fact that the occurrence of pain was in no way associated in time with the taking of food. Another patient of this group had a diagnosis of aneurysm of the aorta and this seemed to be justified by the x-ray plate though the physical findings were for the greater part indefinite or wanting. A routine study of this man's sensation showed that he was a tabetic and it was proven first by a positive Wassermann of the spinal fluid though the blood was negative and finally by keeping him in the ward until a well defined picture of tabes was established—sufficient to convince the utilitarian. In still another instance a great argument had arisen among the house physicians regarding a man suffering great pain in the epigastrium. One insisted on an organic gastric condition but the other was suspicious of early tabes. He had no Argyll Robertson pupil and no absence of tendon reflexes. A study of sensation settled the case as one of early tabes and the pain was gastric crisis.

Many cases of locomotor ataxia never show loss of knee jerks and, indeed, this reflex may even be exaggerated. Many others never present the Argyll Robertson pupil. The usual routine in the examination of such patients is to test the knee jerks, the pupils and the station. If the statement that these signs appear first was correct in all cases tabes would seldom be overlooked and in all the instances cited above this was done as a matter of routine, but it was obviously not enough.

Why we still put our dependence in the knee jerk is hard to explain. It is a well known fact that the Achilles or ankle jerk disappears always sooner than the knee jerk and in many instances the disappearance of this reflex will be the only change of this group occurring in tabes. It has been thought extraordinary by some European neurologists that American insurance companies have never specifically asked for this test as a routine in life insurance examinations. It is said that many cases of tabes as well as of alcoholic neuritis would thereby be caught and the companies protected.

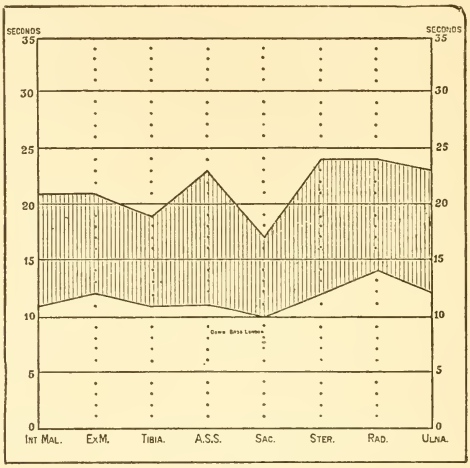
A point of great importance in tabes is the fact that it may progress very slowly, or it may remain only partially developed and also that there is no orderly sequence in the symptoms. Many cases manifest very early primary optic atrophy and it may be this single symptoms which directs attention to the disease. Invariably the primary optic

atrophy of tabes is accompanied by some of the sensory changes, at least, which can be readily discovered if sought for.

In London I was impressed with the great prevalence of gastric crises in tabes and some of the old observers at Guy's Hospital regarded gastric crisis as one of the very early signs of the disease. On the other hand, while at Mt. Sinai Hospital in New York one of the neurologists was surprised that this should have been recorded as an early symptom of tabes because in their large service such was not their experience. Certainly no surgeon is safe who does not investigate abdominal pain from this point of view. When there is no time relation with the taking of food suspicion should be at once aroused for ulcer pain almost invariably presents this point. And yet I have now in mind a man who was emphatic that his gastric pain was always after the taking of food and never occurred at any other time. His pain on careful neurological investigation added to x-ray examination revealed the fact that it was tabetic crisis. If the surgeon does only the routine ward investigation of the patient from the tabes standpoint: that is, tests the knee jerks, the pupils and the station he will miss almost as many cases as will occur without the consideration at all. He must remember that sensory symptoms and signs precede by periods of varying length any reflex sign and that gastric crisis is a sensory disturbance.

The two sensory tests offering the best returns in tabes are pain and vibration. Gordon Holmes depends largely on the covered pin point as he calls it. The pin is held against the ball of the finger in such a way that the observer may allow it to stick or may only allow the soft pad of finger to be felt. It is another method of applying the sharp and dull test. He has stressed the point that there are definite areas of analgesia occurring at the very beginning of tabes. These areas are easily detected by the dull and sharp pin test. The first area often is over the tibial crests. Another early point is the inner surface of the arm. A very dependable test is a band of analgesia surrounding the body passing around about the fourth and fifth ribs. This is easily detected by sticking the pin gently into the skin from below upward until the patient signifies that the point is no longer felt. It is best done with the patient's eyes closed. The most certain single area is the face. I have seen many patients in the clinic of Gordon Holmes with a pin sticking in the tip of the nose to which they were entirely unconscious. There is besides the tip of the nose butterfly areas to each side in many cases. I have seen this so often that it has become to me a test of great value and is a very early sign as well.

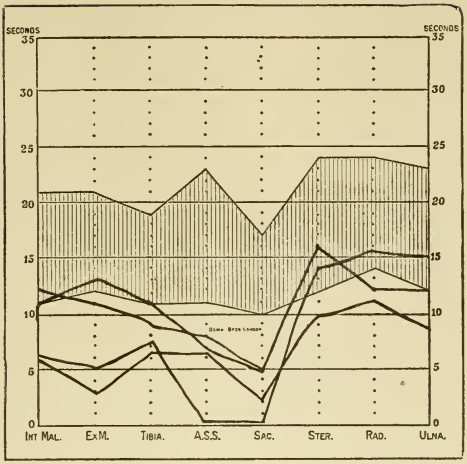
Williamson in England some years ago attracted attention to the value of the test of vibration sensation. He showed that in certain locations it was lost in tabes. The loss also occurs in certain cases of neuritis, in subacute combined degeneration of the cord and in loc-



alized lesions as a lesion of the cauda equina. It does not occur in disseminated sclerosis in any definite way.

Williamson did not use the quantitative estimation of the sensation at all. After his test it was only possible to say that the sign was present or absent. There were no gradations. As a matter of fact the loss in all nervous conditions is a gradual process hence it will be recognized that the case must have reached a high degree of development before the test would be present.

J. L. M. Symns working in Guy's Hospital in 1911 used a tuning fork which had been introduced from Germany as a means of testing bone conduction by the ear specialists. This instrument I now show you. When it is started to vibrate you will note when holding it up to the light that there are two teeth or slots in the window placed at the free ends of the fork. This fork vibrates at the rate of 108.75 per second regardless of the violence of the starting blow but the force of the blow regulates the amplitude of vibration. The instrument is held between the observer and the light until the last bit of



light is no longer seen then it is applied to the bony points indicated in the diagrams and the patient gives a signal when the vibration is no longer felt. This is recorded in seconds. It will be noted in the diagrams that the shaded portion represents the normal range which I established in one hundred healthy people. In the tabetic curves noted in another diagram it will be seen that the line of the case falls below the minimum normal in many points reaching the lowest point in the sacrum. This dip at the sacrum is almost pathognomonic of the disease and is the very earliest indication. When it occurs it makes a clear indication for a lumbar puncture and then the evidences of a syphilitic process puts at rest all doubt. If lumbar puncture was as routine a procedure as is the taking of blood for the Wassermann such tests would be largely superfluous. If the test only serves the purpose of directing our attention to the importance of a spinal fluid Wassermann it is well worth while.

In neuritis there will occur a lowering of the vibration time but the distinctive sacral dip of tabes does not occur for instead of a dip at the sacrum there is a rise well demonstrated in one of the charts.

In subacute combined degeneration or combined sclerosis or funicular myelitis, the neurological cord condition which so often occurs with pernicious anæmia, there is a lowering of the vibration time much as in tabes. Confusion with tabes in a word may be avoided by a

lumbar puncture though there are numerous other clinical manifestations making the differentiation a simple matter.

As a routine if every case was tested over the sacrum with this instrument tabes would never be overlooked. It requires just about fifteen seconds time and does away with the necessity of any further search for tabes for the lowering of time always occurs in tabes and is always the earliest sign. It will be appreciated from the charts that if only a qualitative examination is made no value can be attached to the test. It is in those cases in which we can say that the time is reduced that we have a valuable aid. If the sensation is entirely lost the disease has reached such a point that the chiropractor makes the diagnosis across the street.

In conclusion I would urge the earlier diagnosis of tabes which can only be done when we look on it as a disease of altered sensation. The sensation tests are as simple as the reflex tests only requiring a little more time. And finally let it be remembered that the ankle jerk is always lost in tabes long before the knee jerk which latter may be preserved throughout.

DISCUSSION

Dr. L. E. Bisch, Asheville: There is really nothing that I can add to Dr. Wood's stimulating presentation except to emphasize the importance and value of this new use of a tuning fork to the neurologist and to the general practitioner. As he pointed out, the average tabetic often passes through many hands before he finally is diagnosed. Now Dr. Wood has given us a quick and reliable method which will enable all of us to make diagnosis early. I daresay this tuning fork is expensive—which would be unfortunate—for I think we all ought to add it to our general equipment.

I was surprised to hear that at Guy's they find gastric crises such a usual symptom in beginning tabes. That has not been my own experience. I have found distinct crises rather uncommon, the more usual symptom being, I think, partial anæsthesias and parasthesias of feet and legs.

Dr. J. M. Northington, Charlotte: I would like to say that many cases of locomotor ataxia can be improved. A case of my own which came under observation six months ago, treated jointly by myself and Dr. Elliott, and by no means an early one, illustrates this. The patient was in a poor state of general nutrition and had been in the mountains with a diagnosis of tuberculosis. His improvement under combined intravenous and intra-spinal treatment has been truly remark-

able. He now walks without his cane, as rapidly as any normal individual. In fact he has an unusually rapid gait which he maintains. He has gained about twenty pounds in weight, and is to all practical intents functionally normal. One other point; as to the surgeon opening the abdomen misled by gastric crises. A patient that I never saw but whose case was related to me, had been to a surgeon with a chief complaint of pain in the abdomen. The surgeon made a diagnosis of tabetic crises, explained the causation and the family was greatly upset. From a knowledge of the family I was confident that the diagnosis was erroneous, so recommended an internist in the city in which the patient was living. A diagnosis of cholelithiasis was made, the stones removed and the patient relieved.

Dr. F. M. Hanes, Winston-Salem: As to the curability of tabes, we do not expect, of course, to restore degenerated portions of the central nervous system. The symtomatic improvement in properly treated tabes is really very remarkable. I was associated with Swift & Ellis in the days when they were developing their intra-spinous treatment at the Rockfellow Hospital, and I can truthfully say that I have never seen more remarkable transformations than those which frequently resulted from their treatment. Many cases of tabes came in as human wrecks, despondent, on the verge of suicide from painful, sleepless nights. The treatment rapidly relieved the lightning pains, restored sleep and the appetite returned with remarkable gains in weight. I see no reason why the checking of the action of the syphilitic virus upon the nervous system should not result in improvement in the signs of the disease. We know that even chronic inflammation is associated with local edema and it is a common observation in organic nervous diseases that objective improvement often results from the subsidence of such local edema. Perhaps the most remarkable instance of this is seen in multiple sclerosis, where all objective signs of organic paralysis may completely disappear, with restitution of normal function.

Dr. Wood's contribution introduces an accurate, positive method for estimating the loss of the sensation of vibration in the bones. It has been known for a long time that this sensation is one of the first to be impaired in tabes, and the tuning fork has been used very extensively in neurologic diagnosis. The great merit of Dr. Wood's contribution is the introduction of a standardized technique.

If one wants to enjoy oneself thoroughly he should go for a period of study to one of the great London centers for nervous diseases, such as the Queens Square Hospital, the London Hospital or Guys. Ameri-

can physicians should not make the mistake of trying to study nervous disease in French or German clinics, when such a wonderful abundance of material is available for study in London.

Dr. Wood: I appreciate the discussion. I would like to say that the instrument cost two pounds ten shillings when a pound was worth a little over $3.00. I think we will have them for sale pretty soon. It is absolutely standardized. The work was done not altogether at Guy's but with Dr. Gordon Holmes at Queen Square and with the approval of Dr. Henry Head, who is satisfied the method is entirely a sane one. He uses vibration but in a different way. The criticism that Dr. Hurst had to make was the principle that Dr. MacNider brought out, that you can have altered sensation without a complete loss. In the early cases of tabes the vibratory sensation over the sacrum will never be completely lost.

HYSTERIA

Frederick R. Taylor, M. D., High Point

Osler once said, "Know syphilis, and all things clinical shall be added unto you." There is one other disease to which the same aphorism applies with equal, or even greater force—hysteria. In its protean manifestations, in its exhibition of the bizarre, the spectacular, the comic, the tragic, the unexpected, the baffling, the annoying, and the fascinating, hysteria stands alone, and in its consummate simulation of other diseases, syphilis is its only rival. It runs the whole gamut of human emotions and ideas, and I am unable to think of any subjective symptom which it cannot display. There are a few physical signs which it does not ordinarily produce, but there are many more, of the most extraordinary and spectacular nature, that may on occasion deceive the very elect.

The interpretations of hysteria have, in the past, been almost as varied as the manifestations of the disease itself. Divine ecstasy, madness, witchcraft, and malingering are but a few of the explanations offered in the history of this disease. The best known, because the most catchy definition, is Babinski's famous one, that "hysteria is a disease produced by suggestion and cured by persuasion." The 1920 edition of Osler and McCrae's "Principles and Practice of Medicine" is broader and more guarded in its definition, which is, "a disorder of personality manifested by a heightened and perverted suggestibility, a change in character, together with certain mental and bodily states induced by suggestion—auto or hetero—and cured by

persuasion." This is more comprehensive and satisfactory than Babinski's definition, but it still fails to give us any conception of the essential nature of the disease. The old conception of the uterine origin of the disease, whence the name "hysteria" is derived, still finds expression in a modified form in the extravagant theories of the Freudian school, which are here mentioned only to be condemned as half truths. The most satisfactory definition that I have been able to find is that of Pierre Janet, who writes, "*Hysteria is a form of mental depression characterized by the retraction of the field of personal consciousness, and a tendency to the dissociation and emancipation of the systems of ideas and functions that constitute personality.*" There may be flaws in this definition, but at least it gives us a clear cut conception of the nature of the disease, with which all the observed phenomena can be harmonized.

The Germans taught us much about disease from the standpoint of pathological anatomy in the latter part of the last century, the Anglo-Saxon world is today making enormous strides in pathological physiology, but neither of these fundamental sciences adequately explains hysteria. The peculiar and invaluable contribution of Janet and his brilliant school of French workers has been the development of pathological psychology as a fundamental medical science, and the application of this science in the interpretation of hysteria as given in Janet's definition just quoted, clears away many difficulties, and sheds light for future progress.

Let us examine this definition in a little detail. To take the first point—*hysteria is a form of mental depression.* "What!" you may think; "do you mean to claim that all hysteria is a depression? What about your hysterical fits, your grand outbursts of passionate emotional states, etc.? Are these things depression phenomena?" Herein lies a paradox—they are at once phenomena of depression and excitation. The co-ordinated personality *is* depressed, and depressed below the threshold of consciousness, while one function, or group of functions of the personality is dissociated from the rest, and, dominating the field of consciousness, it runs riot. A somewhat similar phenomenon may be observed in the "stage of excitement" of alcoholism where there is depression of inhibition and co-ordination. In other types of hysteria the depression may be more limited and specialized, as, for example, the depression of sensation in some part of the body producing an anesthetic area, etc. In the case of a hysterical spasticity of a limb, the idea is suggested, and other ideas antagonistic to this one are depressed until there is complete dissociation and domi-

nance, so far as that limb is concerned, of the idea of the spastic condition.

In elaborating the first point of the definition, we have already touched upon the succeeding points. *The retraction of the field of personal consciousness* may be observed in every hysterical state. If an idea or suggestion becomes fixed in the mind, it produces bodily or mental effects that would be impossible, were there not a retraction of the field of consciousness which excludes other ideas obvious to normal individuals, and incompatible with the hysterical idea.

The third point in the definition, that hysteria is characterized by *a tendency to the dissociation and emancipation of the systems of ideas and functions that constitute personality,* is the very sum and substance of the whole matter. *Dissociation* is the key word. It unlocks many of the hitherto incomprehensible puzzles of this extraordinary disease. Suggestion plays a part, to be sure—we by no means reject Babinski's dictum enmasse—and we have seen, and even produced, cures by persuasion, of too definite a nature, to doubt the value of this method when properly applied; but Babinski doesn't get at the heart of the matter. *How* does suggestion produce such phenomena? The answer is, *by dissociation.* Persuasion, when it cures, *associates.* Or, to use a slightly different phraseology, the disease is a psychological disintegration, and the cure or recovery a psychological integration. The dissociation may be of only a part of one function, as in constriction of the visual fields, or it may amount to a complete double personality, or it may be anywhere between these two extremes.

Charcot taught that hysteria manifests itself in two ways—by temporary obvious phenomena, and by stigmata which are present before the obvious symptoms appear and persist after their disappearance. More modern authorities reject this view. There is unquestionably a type of nature that is peculiarly susceptible to attacks of hysteria, i. e., there may be a tendency towards hysteria, just as there may be a tendency towards tuberculosis. However, a highly strung emotional nature is no more actual hysteria than a flat chest is necessarily tuberculosis. Furthermore, just as the man of perfect build, given sufficient exposure plus a sufficient exhaustion of resistance may develop tuberculosis, so *anybody may develop hysteria under sufficient provocation.* This idea has been especially well elaborated by Arthur F. Hurst of England—("What the War Has Taught Us About Hysteria," in "Contributions to Medical and Biological Research" dedicated to Sir Wm. Osler, Vol. 1, p. 600ff.)

These two ideas, that there is no constant hysterical, mental condition, and that hysteria may occur in anybody, lead to most important practical results. Hysteria, as Hurst points out, is more common than has been supposed, and many conditions regarded as organic are really in part or wholly hysterical. This explains most of the successes of Christian Scientists and the followers of various other cults and isms, with patients that physicians and surgeons have failed to diagnose and cure, because of the absence of the supposed hysterical stigmata. Anesthesia, constriction of the visual fields, etc., believed by Charcot to be permanent stigmata have been repeatedly shown to be dissociation phenomena produced by suggestion. In hunting for the "stigmata" of hysteria it is extremely difficult to avoid giving powerful suggestions to an abnormally suggestible patient.

The war has taught us beyond peradventure that anybody may develop hysteria. Many unemotional stolid soldiers developed profound hysteria because of the terrific strain to which they were subjected. Equally great with the strain was the intensity of the suggestion that severe disability meant release from the horrors about them. The heroic natures battled against the strain and suggestions until they overcame them, or until the conflict proved too severe, and *dissociation and emancipation of the ideas and functions that constitute personality* resulted—in a word, they developed hysteria. Certain of the less heroic natures, unable to bear the extremity of suffering and strain necessary to produce the dissociation, voluntarily and consciously disabled themselves, and came to be among the S. I. Ws, as they were called—those with self-inflicted wounds. Many of the S. I. Ws., however, were truly hysterical—there was depression of all ideas save the one of getting wounded as quickly as possible, and that ran riot. It is gross injustice to class all S. I. Ws. together—some are genuine hystericals, and others simple evasive slackers.

A very common fallacy among medical men is to assume that a given condition is always either entirely organic or entirely hysterical. Hurst believes that the most common source of hysterical symptoms is some organic disease or injury, the symptoms resulting from which are perpetuated or aggravated by auto-suggestion, and even by hetero-suggestion on the part of the physician in the course of his examination and treatment. Certain it is that hysteria and organic disease are often concomitant. Who dares claim that he can lessen the structural changes of tabes, once they have occurred? Yet the Frenkel re-educational exercises often help the tabetic. What is this but the removal of a hysterical exaggeration of an organic ataxia—a re-education of the mind rather than of the deficient muscle sense?

The therapeutic value of the personality of the physician is everywhere recognized in all forms of disease. It does not cure cancer or tabes, to be sure, but it may mean the balance of power between life and death in so grossly organic a disease as tuberculosis. Hurst cites a case which forcibly illustrates the association of hysteria and organic disease. A soldier was admitted to hospital with such severe ataxia that he could scarcely use his hands, and could neither walk nor stand without assistance. A thoro examination was not made at first, and the condition was regarded as hysterical, and treatment directed accordingly. At the end of a week he could walk almost normally, and could use his hands for all ordinary purposes. A more careful study then showed that he had all the typical signs of Friedreich's ataxia, and his brother was a complete cripple from this condition!

Janet cites another interesting case of a young woman who cut her right hand, severing the median nerve and producing slight organic anesthesia of the fingers, which distressed her greatly, and on account of which she applied for treatment. A simultaneous profound hysterical anesthesia of the entire left side of her body did not trouble her in the slightest degree—sensation there was dissociated from the rest of her consciousness, and could not trouble her, whereas there was no mental dissociation of sensation in her right hand—she was keenly conscious of that loss.

The lesson to be drawn from these and other similar cases is that in every case of organic disease, even of progressive organic nervous disease, the possibility of a hysterical element should be considered, psychotherapy applied, and the hysterical element, if present, removed as far as possible. Nothing but actually trying psychotherapy can show the degree of hysterical element present. Hurst has made the interesting discovery that even certain time honored physical signs of organic nervous disease may be present in hysteria, when that hysteria is a perpetuation of the phenomena originally resulting from a temporary organic condition. Thus he cites two case of hemianopsia due to gunshot wounds of the occipital lobe causing concussion and other evanescent changes. When these phenomena cleared up, the hemianopsia persisted until removed by psychotherapy.

Dr. Hanes asked me to report a case of somnambulism, which Janet says is always a hysterical phenomenon, if I had it in my records, but I regret that I have no detailed observations of such a case. It has been my good fortune to see two cases of extreme hysterical convulsive attacks of the type that Janet says Charcot described, but that died with him, having gone out of fashion and given place to somnambulistic phenomena, which, in turn, largely disappeared when hys-

terical paralysis became the style! Both illustrate the extraordinary simulation of organic disease that may occur in hysteria. They can be given only brief mention here. One, a man 33 years old, simulated epilepsy. He was apparently unconscious when first seen, with his back arched, cyanotic, and frothing at the mouth. Aromatic spirit of ammonia under his nose aroused him, and he tried to escape from the room. After someone had suggested the possibility of epilepsy, he said he was epileptic. Before that he said he had been drugged. He had several convulsions with lucid intervals of a few moments between them. He did not hurt himself in these convulsions, showed us a depression apout the size of a dime in the right parietooccipital region which he said was due to injury in a former similar attack. One leg had been amputated below the knee because of a railroad accident 6 years previously. His convulsive attacks antedated this, he said, having begun at the age of 14. He had anesthesia of an irregular region about the left iliac bone and extending over to the left groin and hypogastric region. His urine was negative. He recovered from his attack in 24 hours.

The other convulsive case misled three of us into a diagnosis of strychnin poisoning. She was brought into the Germantown Hospital in Philadelphia in extreme opisthotonus, by a police patrol. The only history we could get at that time was that the police had picked her up in a drugstore in a convulsion shortly after a drug clerk had given her a headache powder. The intern in charge of admitting patients washed her stomach and introduced tannic acid and 60 grains of sodium bromid thru the tube. This was followed by ¼ grain of morphin hypodermically, and she was sent up to my ward. Her convulsions steadily became more violent and frequent. Their violence was beyond description, almost rivalling the convulsions in a case of rabies that I once saw. Nobody suggested anything other than strychnin poisoning—a diagnosis of hysteria would have seemed ridiculous to us. These convulsions lasted 7 hours, being controlled only partially with chloroform. How the girl stood the terrific muscular strain I do not know. She appeared to hear everything we said except when under chloroform, but talked a great deal to her mother, who was not present. Her pulse was too good and her reflexes too slightly exaggerated for strychnin poisoning, but the spell of the spectacular was upon us youngsters, and the diagnosis remained unchanged until the next day. We finally extracted a long history from her, full of contradictions, lies, accounts of family quarrels, etc. To make a long story short, we eventually discovered that tho she denied having ever been in Philadelphia before, she had actually been a patient in five

Philadelphia hospitals, and had frequently been chloroformed, but her real diagnosis was hysteria complicating chorea. There was considerable evidence to show that she had a double personality. The chorea was treated medically, and the hysteria was cured for the time being by ordering the nurse in the patient's hearing to allow the patient to have all the fits she pleased, and throw herself out of the window if she liked.

A very interesting case of traumatic hysteria was observed in the Germantown Hospital. The chief points of interest were its typical character in a strong healthy young man, and the absence of any medicolegal aspects to confuse the picture. This is the last case that I shall weary you with. A heavily built red faced healthy looking fellow 20 years old was admitted with the complaint that his left arm and his body from his waist down were powerless. He stated that about a year before, he was thrown from a horse, and the horse fell on his abdomen. He didn't give up for three weeks, but then went to the Jewish Hospital in Philadelphia with pain in both knees, which was relieved by capsules and oil of wintergreen. He said he sometimes got pain in his knees and fell, sometimes got tender swellings on both sides of both knees, and sometimes got paralyzed. Pain does not cause inability to move—it is simply a loss of power. He says that during these attacks he vomits if anyone sits him up in bed. Somewhat constipated. Often has sharp stabbing transient pains in umbilical region which do not radiate anywhere. For about a year, getting out of bed in the morning, walking fast, or running, would cause everything to look black, and he would fall. Then his knees would feel very stiff, and he could not move them for a while. Once he got off a street car in a hurry and suddenly lost power in both knees, and had to stand still 15 minutes before he could proceed. Has never had paralysis of bladder, bowels, or genital apparatus. Complains of sharp pains every 15 or 20 minutes in right lumbar region. While being observed he suddenly jumped, and said it was due to one of these pains. Said he had blood-streaked sputum and bloody stools. This was a pure fabrication, so far as we could learn. Constant backache and headache. Says he has no sensation from waist down or in left arm, except that when left arm is picked up, pain shoots across chest obliquely down as if a string were cutting him. Other previous history and family history unimportant. Drinks 4 or 5 cups of boiled tea and smokes a pack of cigarettes daily. Is a plumber, but has never had lead poisoning.

Physical Examination:—Does not move body below waist. Gives frequent sudden starts and jumps with upper part of trunk when he

feels the sharp pains described above. Now says his body always seems to be in a raging heat. Skin cool and rather dry. For the sake of brevity only significant findings will be catalogued. Pupils moderately contracted, with left pupil slightly larger. Slight lateral nystagmus. Pressure over right mastoid slightly painful, but no signs of otitis. No lead line on gums. Heart normal except for frequent extrasystoles at irregular intervals. Marked hyperesthesia all along spine, relieved by deep pressure except in cervical region, where deep pressure increased the pain. Sitting him up in bed did not make him vomit. Upper abdomen showed rather superficial hyperesthesia, relieved by deep pressure. The skin in that region, however, was anesthetic to pinpricks. Pain shoots down into right thigh when epigastrium is lightly pressed. External genitals normal.

Extremities:—Upper. Right normal. *Left* relaxed and motionless. No muscle atrophy. Anesthetic thruout except for very small points in front of elbow. *Lower*—Both anesthetic thruout, except that in one point in left thigh, just below Poupart's ligament, he jumps at a pinprick, but says he does not feel it. *Back*—Skin sensation normal in upper part. Marked cutaneous hyperesthesia in lumbosacral region. Lower half of buttocks anesthetic. No ataxia in finger-to-nose test. He now says that the soles of his feet feel as if they were split open, tho can't feel pinpricks there. Bicipital reflex present on both sides, exaggerated on "paralyzed" side. Patellar reflexes slightly decreased. No ankle clonus. No plantar reflexes because of anesthesia. His legs are not powerless, as he holds them horizontally over the bed extended, when they are placed in that position, until told to relax, when he does so, and his knees bend. No slurring speech or tremors. Urine negative.

On taking Epsom salts he remarked that it would do him no good, and that a teaspoonful of plain salt was the only thing that would move his bowels. The Epsom salts worked, however.

The patient was out of bed in 5 days as a result of suggestion. A very bitter stomachic was given by mouth, and hypodermics of sterile water every 4 hours during the day and at 2:00 A. M. Patient said that hypodermics made him sleepy. On all possible occasions he was told with the most emphatically positive assurances that he would recover quickly. In 5 days he was out of bed, and in 9 days, only a limp in his walk remained, and this disappeared instantly when he overheard us telling his mother that he had been given hypodermics of plain water. He then asked for his immediate discharge, and this was granted.

I would like to go on and cite further cases, including one of hysterical mutilation observed personally, and another described to me by Dr. Hanes, but time forbids.

In closing, I would emphasize these four points:

1. The pathology of hysteria is not anatomic or physiologic, but psychologic.
2. Hysteria in all its aspects is a dissociation of the functions of personality, partial or complete.
3. Anybody may get hysteria, given sufficient cause.
4. Hysteria and organic disease frequently coexist in the same patient, therefore in all cases of hysteria we must search for organic disease, and in all cases of obstinate organic disease we must search for hysteria.

DISCUSSION

Dr. E. J. Wood, Wilmington: It was very pleasing to me to hear Dr. Taylor's paper. Certainly I do not know anything more about hysteria than he has so well given us, but it was my privilege to be with Dr. Hurst, to whom he refers, and I saw a repetition of the things he mentions many times. The thing that impressed me most was the attitude in Dr. Guy's Hospital that every organic disease had a superimposed functional element. I have seen many cases taught to walk, regaining a remarkable amount of normal usefulness with their hands as well as their lower limbs.

Dr. L. E. Bisch, Asheville: I hesitate to get upon my feet again because I am scheduled to read a paper myself. Yet there are certain points which the essayist propounded that I believe should not pass unchallenged.

In the beginning of his presentation he made an assertion to the effect that the theories of psychoanalysis are superficial. Then he, himself, enumerated a list of hysterical symptoms and talked about dissociation of the personality as the basic cause without giving us an explanation of what such dissociation really means.

There is no doubt that in almost any hysteria—and it may be added here that different psychologists use this term to indicate quite different states—one can demonstrate a splitting of consciousness or a dissociation of personality, depending upon the method of approach one uses. There is no doubt also that suggestion—both waking and by means of a definite hypnosis—often seems to cure such cases. However, what I wish to point out is that where hypnosis ended, Freud and his psychoanalytic hypotheses began.

Freud worked with hypnotism on just such cases and, failing to find satisfactory causative factors, he began to evolve his theories of suppression and unconscious strivings.

It has been my privilege to use both methods and I have become convinced that not only is the psychoanalytic procedure more efficacious and rational but also that there are certain types of hysteria that yield to no other form of treatment. Occasionally both psychoanalysis and hypnosis can be used with effect.

We often succeed in helping hysterical states without really understanding why we are so successful. If we adopt the principles of analysis in such cases our insight is tremendously reinforced.

Another point on which, unhappily, I cannot agree with the essayist is that the war proved that anybody can develop hysteria. I think that is exactly what the war disproved. During my service I treated marines who had been in Belleau Wood and at Chateau Thierry and who had been sent back to this country suffering from various types of neurosis, including hysteria. We were able to satisfy ourselves in many cases that a definite hysterical make-up existed prior to enlistment—a tendency to hysteria, if you will.

If it be true that anybody can develop hysteria, why didn't everybody develop it, since all those at the fighting front were subjected to enormous and unusual stress and strain? Most of the men were able to adjust themselves to the new circumstances and those that couldn't didn't necessarily develop hysteria—many became psychotic. In this connection, Dr. Foster Kennedy of New York made some interesting observations which he published. The British also issued some valuable data along these lines.

Dr. F. M. Hanes, Winston-Salem: Only the unwounded developed hysteria. I have seen the statement made by a competent neurologist that no wounded man developed hysteria.

Dr. Taylor: I want to thank Dr. Bisch for his frank and valuable discussion. I perhaps have not made myself clear in part and I possibly may be in part mistaken, but I do not believe we are as far apart as he thinks. I did not condemn psychoanalysis. I condemned certain conclusions of the Freudian School. I admit that inner conflicts and everything of that sort are mighty factors in producing hysteria, and "mental catharsis" is often invaluable in the cure of these patients, and I agree that in a great many cases it is the only treatment worth while. What I was objecting to was the extreme that certain members of the Freudian School go to in attributing

everything to sex factors and the extravagant symbolism to which they resort. I did not condemn them as falsehoods, but as half truths. There are certain things which I cannot accept. If I had Dr. Bisch's experience perhaps I should be less willing to rush in and make such statements.

As to the meaning of dissociation of personality, unquestionably it is dissociation by certain conflicts, often, but not always, on a sex basis.

About those that did not develop hysteria, so far as the wounded not developing it, they didn't have sufficient cause, or rather the cause was immediately removed. They were at once removed from the strain. Prof. William James in his text book of psychology or in his lectures once remarked that the kind of beefsteak a man ate for breakfast might determine whether he was going to be a hero or not. Given a large number of men under a terrific strain, some of them by virtue of some small factors that would not appear on the surface would go under from the strain, others would not.

I do not know that I could prove the point that anybody may develop hysteria but I feel that it is true, and that it would be quite impossible to prove that anybody is incapable of developing hysteria under any conditions, unless he is so mentally defective as to have no personality to dissociate. In making the statement that any one may develop hysteria, given sufficient cause, I, of course, freely admit that the "sufficient cause" varies tremendously in different individuals. Momentary annoyance may precipitate an attack in very susceptible persons, while weeks of terrific strain without proper food or rest may be endured by others, and hysteria in the war appeared in so many widely variant types of men—variant physically, intellectually, emotionally, that it seems as difficult to believe that any one is absolutely hysteria-proof as to believe that he is absolutely tuberculosis-proof.

THE MENACE OF DRUG ADDICTION—SUGGESTIONS FOR ITS ERADICATION

Louis E. Bisch, M. D., Ph. D., Asheville

To present a paper on the menace of drug addiction to a society of physicians would seem to be analogous to "carrying coals to Newcastle." Yet, although all of us realize the scope, the difficulties, and the seriousness of this problem, there are few, if any, who would claim that North Carolina has solved this perplexing question and that it is meeting the situation adequately.

To be sure, since the passage of the Harrison Narcotic Law in 1914, the federal government through its Commissioner of Internal Revenue, has conducted a vigorous campaign against narcotic drugs, but it must be remembered that the law is primarily a revenue measure and that the federal authorities never posed as doctors nor did the act attempt to supplant the physicians in the treatment of habitual users. If, in controlling and restricting the amounts of narcotics that may be prescribed under the law, more serious attention was called to these pitiable unfortunates, and if perchance such propaganda has resulted in a more scientific handling of these cases, it cannot be denied that the problem in last analysis remains distinctly medical. Furthermore, although the Treasury Department had hoped to secure the assistance of the United States Public Health Service looking towards the institutional care of addicts, no appropriation has been made by Congress for this purpose and so the burden for the care of drug cases really falls upon State and municipal authorities just as the indigent sick of a community are public charges. (1)

North Carolina has no statistics by which to estimate the number of drug addicts within its territory. However, it is believed that there are over 1,000,000 addicts in the country although estimates have run as high as 4,000,000. This is taken from a report of a Special Committee of Investigation appointed by the Secretary of the Treasurer and published in June, 1919. In it we also find the following data: that the number of addicts under treatment by physicians registered in North Carolina at the time of the report was 8,077 (which is probably an underdetermination since it is based on an estimate of only 27 per cent of the physicians who replied to the circular questionnaire); that "the consumption of narcotic drugs in this country has steadily increased from the date of their introduction"; and that "about 90 per cent of the amount of these drugs entered for consumption is used for other than medical purposes." We read also that "the predisposing causes of drug addiction in order of their frequency as stated in the reports of Health Officers are chronic diseases, prostitution, mental troubles, nervousness and neurasthenia. The ways in which the habit was acquired, stated in the order of their frequency, are as follows: Through physicians' prescriptions, use of drugs for chronic diseases, prohibition, association, use of patent medicines, prostitution, as a means of producing stimulation, and through curiosity."

"The drugs used by addicts in order of their frequency, as shown in the replies to all forms of questionnaires sent out by the committee, are as follows: morphine, heroin, opium (all forms) and cocaine.

Codeine, laudanum, and paregoric are reported as being used in about equal amounts, but to a lesser extent. In recent years the use of heroin has greatly increased, and in some communities it is at present used more extensively than any of the other drugs." (2) It is interesting to note here that heroin, which is usually used as a snuff and forms a habit very quickly, has practically no therapeutic value.

And in considering the ways in which drug addiction develops we must not forget the enormous quantities of patent medicines that are taken, often innocently, but which are exempted under Section 6 of the Harrison Act. Paregoric which, according to the United States Pharmacopoeia standard, contains a little less than 2 grains of opium to the fluid ounce, is perhaps the worst offender. It can be bought without prescription as it is exempt within the law.

There is no information at hand to controvert that what is true of the nation also pertains to this State. Our Consolidated Statutes contain sections dealing with the sale, limitations on possession, and the filling of prescriptions referable to specific habit-forming drugs, yet these sections are practically repetitions and interpretations of the Harrison regulation. It follows therefore, that if the federal act has not cured the evil, our own legislation cannot have tended to better conditions.

The State Hospitals at Morganton and Raleigh are supposed to take drug cases but we all know how overcrowded they are and that they cannot even take care of the psychotics that apply for admission. In addition to these two institutions there are about a half dozen private sanitariums that more or less specialize along these lines. Since the bed capacity of the latter is very limited and since many addicts cannot afford to pay for institutional treatment, these latter hospitals cannot help much. The result is that the hospital facilities in North Carolina are totally inadequate for caring for addict patients.

In order to meet a similar situation in other places drug clinics have been established in the past with the intent of relieving the suffering of those clamoring for treatment but in conformity with the law. Notable examples are the clinics of New York City and New Orleans. Both were failures.

The clinic in New York was opened in April, 1919, by the Board of Health. It was closed in March, 1920. Its failure, and the lessons learned by its trial for eleven months, are well described by Dr. S. Dana Hubbard, in the Public Health Reports for March 26, 1920.

"It was found that of the 7,400 drug addicts who attended the clinic for their narcotic, less than 2,000 were willing to go to a hospital for treatment, with ultimate cure in sight. The officials of the depart-

ment were convinced that it was not the proper procedure to give narcotic drugs to addicts for self-administration. Some addicts sold the excess obtained at the clinic to other addicts or peddlers. There was fraud in obtaining the drug. Friends of addicts became habitues through association with beneficiaries of the clinic. With very few exceptions, no cures were known to have been effected by means of the reduction system used. Ambulatory treatment was found to be vicious in principle and in effect. There is no need of prolonging addiction by a continued supply of narcotics." (3)

A similar clinic was opened in this State by the Durham-Orange County Medical Society on December 23, 1920. The purpose of the clinic was not to cure drug addicts, but only to take care of the incurable cases in these counties. It was closed after two months. (4) It may be added that although the Internal Revenue Department at first approved of such clinics so as to meet local emergencies, it later came to the same conclusions as those given by the New York Board of Health.

Since, then, North Carolina has no clinics and can not take care of its habitual drug users in hospitals the natural result must be that its addicts are in the great majority of cases being treated from the medical practitioner's office and by the ambulatory reduction method. Anyone who has studied the subject at all knows that when gradual reduction is employed without absolute control of the patient the procedure is invariably ineffectual and is always doomed to failure.

There are a number of treatments for drug addiction besides the gradual withdrawal method, the most effective being the Lambert and the Hyoscine treatments. The Lambert system is one of drastic intestinal elimination together with the administration of belladonna and fluid extract of hyoscyamus in drop doses for about 60 hours. The Hyoscine procedure begins also with elimination, both skin and intestinal, for several days followed by hypodermic injections of hyoscine hydrobromate for about 48 hours. Many modifications of these treatments have had their vogue and repeated injections of salt solution into the veins have also been employed.

It matters little which type of treatment is employed so long as the patient is isolated and controlled in every particular while the taking-off process is going on. In fact, it is not really a very difficult matter in most cases to carry a patient through to total abstinence and it can often be brought about in a few weeks. The trouble is—and here lies the crux of the whole problem—that he will almost invariably return to the drug again.

What must be thoroughly understood and most strongly emphasized is that the narcotic addict does not revert to his old habit willingly or willfully through innate viciousness on his part. He goes back again and again for no other reason than that he absolutely cannot help himself.

One need not dwell here on the marked mental and physical deterioration, often disorganization, that always follows sooner or later in the wake of addiction. Habit-forming drugs hold their victims in an inexorable grip of dominance that has no parallel anywhere. The mere withdrawal of the drug to which they have become enslaved produces such unrelenting discomfort and cravings, often of a distinctly painful organic nature, that the addict will lie, steal, commit depraved acts, and even murder in order to obtain a dosage that will relieve his anguish. Cocaine brings about a more rapid destruction of mental powers and moral sense than does the opiates. Heroin acts much like cocaine. The Federal investigating committee mentioned previously found that the users of opium and morphine are more apt to commit such crimes as larceny, burglary, vagrancy, forgery, assault, and violations of the drug laws, while cocaine and heroin users are more given to brutal and violent crimes.

Nothing is more fallacious than the opinion held by so many—even some physicians—that a narcotic addict can control his habit by an act of his own will power. What the addict is *not* is a free, untrammeled human agent with normal intellectual faculties that can hold emotional strivings in check. What he *is* is a pitiful, despised, misunderstood creature that has to a greater or lesser degree lost his sense of moral and social responsibility, suffering often untold agonies of body and mind, and fighting often an intangible demon whose ravages put the creations of Dante's "Inferno" to shame.

As the Honorable Sara Graham-Mulhall (5) said before the American Public Health Association in 1920, "Acting upon the mistaken theory that he could, if he would, the unfortunate addict has been arrested, thrown into jails all over the country, and compelled to suffer it out. . . . . The ignorance of officials is what might be expected, as neither they nor the general public have been educated on the subject of addiction. There has been no effectively-carried-out concerted effort by public health officials to enlighten the public as to the nature of drug addiction and its proper treatment. . . . . The medical profession, as a profession, has not considered narcotic addiction seriously, this aloofness leading to error on the part of the public and to unmerited suffering by the addicted. No constructive national program has been presented, repressive laws being the only

national achievement thus far, in this field. . . . . A more unscientifically handled class does not exist."

We, as physicians, must recognize without prejudice or reservation that drug addiction is not a crime but a disease. Certainly it is just as much a disease as is insanity. It was through the efforts of enlightened physicians that the inhuman and medieval handling of psychotics by society was abandoned in favor of our modern asylum; likewise it is our duty to instruct the public, educate officials, and afford the addict an opportunity to cure and rehabilitate himself on a sound, scientific, rational basis.

When the addict has been taken off his drug, the cure has only begun—the first step towards permanency in physical, mental, moral and social regeneration has alone been consummated. What the requirements of the narcotic sufferer urgently demand are prolonged after-care treatment under skilled hands, removed from the old environment and associates that incite so strongly to relapse, and an enforced, controlled, re-educational regime including individual, analytical studies, psychological training, occupational and recreational therapy, etc. In short, the patient must be taught a new point of view, and given a new lease of life.

All this can best be accomplished in an institution specially designed for this purpose—preferably of the colony plan—to which the patient is legally committed by application or voluntarily, and until such time as the supervising medical specialists in charge deem it proper to discharge and return him to the community as cured, or place him upon probation for such periods as circumstances may warrant.

If we are to make any real headway in removing drug addiction in North Carolina it would seem that resolute, concerted, and drastic action is necessary. Every addict is an actual or potential menace to himself and to his fellows and the public health and safety is endangered if he remains a free, uncontrolled, unrecognized, uncured member of society. If health boards are empowered to demand registration and isolation in cases of contagion and set aside laws with impunity in times of emergency, is there any reason why similar powers should not be conferred upon them to remedy this crying evil which saps the very vitals of our social structure?

First of all, we must not shirk our duty as physicians in aiding State and Federal officials, not only morally but actually, in enforcing the present laws in their endeavors to suppress the nefarious traffic in narcotics.

Secondly, we should institute a state-wide educational campaign under the auspices of our State Board of Health in order to instruct

the lay public concerning the problem and to warn them of the dangers of proprietary medicines.

Third, we should inaugurate some sort of canvass by means of which the Board of Health may come into possession of statistical data concerning the extent and character of narcotic addiction.

Fourth, we should do everything in our power to discourage and, if possible, legislate out of existence, the treatment of addicts by the ambulatory reduction method. Furthermore, at least moral pressure should be brought to bear upon all physicians that they discontinue the practice of giving addicts any dosages of narcotics whatever for self administration.

Fifth, we should take proper steps that only physicians who are reputable in every particular may be able to secure licenses to prescribe or dispense narcotics, and in this regard special care should be exercised that no physicians obtain such licenses who are themselves addicts.

Sixth, our statutes should be so amended that no proprietary medicines, no matter how little their percentage of habit-forming drugs, can be purchased except upon the prescription of properly registered physicians under the Harrison law.

Seventh, that it be made compulsory for all physicians of the State to register and give certain descriptive data concerning all addicts under treatment by them of whatever sort or emergency—the term addicts not to include patients who are suffering from chronic, wasting diseases, and who are receiving narcotics under the personal direction of physicians.

Eighth, that physicians who attempt to cure addicts be required to inform themselves from a central bureau (to be established) whether the addict about to be treated has applied for similar treatment elsewhere within the State—a fingerprint system being instituted for purposes of identification, if necessary.

Ninth, that a clause be added to the Public Health Law declaring the habitual use of cocaine, opium, or its derivatives, to be dangerous to the public health and safety and that magistrates and local health officers be empowered to commit an habitual user, upon his application, to a proper institution.

Tenth, that if an addict apply for reduction or cure for the third time to any physician, that said physician in conjunction with a colleague, be permitted to make application for the commitment of said patient through proper legal channels—the procedure being analogous to that employed in cases of lunacy.

Eleventh, that immediate steps be taken to invoke the State Legislature to authorize the erection of a hospital devoted to the treatment and after-care of addict cases—said hospital only to receive committed patients.

Gentlemen, the writer realizes that what he has suggested as a remedy for the eradication of the menace of drug addiction is ambitious and comprehensive. However, nothing short of such, or similar, vigorous measures will strike at the roots of the problem. This paper has not been presented as a final or even a profound treatise. It is based upon the writer's own experience with drug cases as a neuro-psychiatrist and upon his study of the experience and opinions of others. It is hoped, however, that enough of these suggestions may be sufficiently stimulating to inaugurate some definite stand or activity on the part of this society, looking towards practical reform.

REFERENCES

(1) "Enforcement of the Harrison Narcotic Law"—Bulletin issued by the Treasury Department to its Collectors of Internal Revenue, etc., 1919.

(2) "Traffic in Narcotic Drugs"—Report of Special Committee of Investigation appointed March 25, 1918, by the Secretary of the Treasury; published June, 1919.

(3) "Narcotic Drugs and Crime"—Report of Committee (G) of the American Institute of Criminal Law and Criminology, Sept., 1920.

(4) Personal communication from Dr. John M. Manning, Medical Director of the Durham-Orange County, N. C., clinic.

(5) "The Helpless Narcotic; A Public Menace and a Public Health Responsibility"—Hon. Sara Graham Mulhall; American Public Health Association; San Francisco, Cal., Sept. 14, 1920.

DISCUSSION

Dr. J. M. Manning, Durham: I want to thank in the first place Dr. Bisch for his very intelligently written paper.

There has been no class in our community of sick people that have appealed to my sympathies more than the confirmed drug addict. He alluded there to the Durham County Board of Health organizing a clinic. That was done under my suggestion. We had something like thirty-five or forty confirmed old addicts of many years standing. I went before the Durham-Orange County Medical Society, knowing full well that no doctor on his own individual responsibility wants to assume the responsibility of treating a drug addict or supplying him with his drugs, so I went before this Society and proposed, acting under the suggestion of D. C. Roper, Commissioner of Revenue in Washington, that the Department of Revenue had ordered certain

things. I proposed to this Medical Society, knowing that every doctor in Durham wanted to get rid of their addicts, that they approve a clinic for Durham, not to cure drug addicts, because I do not believe that can be done outside of some institution where the drug addict is entirely isolated and under the control of the physician in charge of the institution. A resolution asking that the Board of Health of Durham County form this clinic was unanimously passed by this Society. I then went before the Health Department of Durham, and I do not think there is a better health department in North Carolina than we have in Durham. Dr. Cheatham is our whole time health officer, and asked that they endorse a movement of that kind, and they elected me director of this clinic. The purpose of this clinic was not to cure the drug addict—I agree with the parties in Washington that cannot be done without some isolation—but in order to furnish these addicts of twenty years with the drug of their addiction and in order to get them from being a prey to the yeggmen and illegal traffickers. You may not know but in Durham they have told me they have paid these illegal traffickers as much as $25.00. They are all generally poor, it usually takes all they can get to pay for the drug, and that was the reason this dispensary in Durham was established. I tell you gentlemen between the Revenue Department on one side assuming to direct me, and the ex-druggists and ex-nothingists and the appeals of these pitiful creatures I had to disband this dispensary or become an inmate of the insane asylum myself.

Before going further I want to pay my respects to Ernest Bishop of New York, one of the leaders of medical thought in this country, a man who has thrown more enlightenment on this subject than any man that I know of, a man who has had experience in the criminal hospital of New York, a man well qualified from a medical viewpoint to study the subject, and he had arrived at the conclusion that drug addiction is a disease and not a habit, as the Revenue Department wants us to understand. They go about the country trying to stop a poor, friendless addict just as they break up an illicit still in Durham County. It cannot be done and I do not think the Government has done what it should in respect to drug addiction, addicts made on the battlefields of France in defence of their country. There is a poor boy in Durham today, who was shell shocked in France. He was discharged from the Army a drug addict. What happened? His mother was a widow. She took this boy back home. He had been in France fighting for his country and the United States Government was not taking care of him. I wrote Senator Simmons, I was so interested, and asked him if any provision had been made by the United States

Government for the care of the drug addict. He referred my letter to the Revenue Department and they answered it—which they are not in the habit of doing generally, they don't pay you much attention, but they did it at Senator Simmons' suggestion—and they said nothing had been provided. The boy could not get the morphine in sufficient quantities for his sufferings, and with anybody who knows what the sufferings are it is unnecessary for me to discuss it. One Saturday night he broke into a drug store, he wanted nothing but the drug and what did he get? He got heroin, the police department caught him, committed him to jail, tried and convicted him of burglary. Judge Conklin was holding court and as he knew I was very much interested he sent for me and asked me what to do. I said, "He is a drug addict, he has heart murmurs, he would not be able to work in the work house." He put him in jail and the Health Department took charge of his morphine habit until we could get him in the Insane Asylum at Raleigh. This widowed mother had to pay $150.00 in advance to get this boy in the Insane Asylum and she is undertaking to make a living at this day and time. The Government took that boy, well and a physically fit young man, put him in its service and brought him out an addict and a cripple for life, and what do you think that poor mother thinks about her government. I am speaking, gentlemen, I am illustrating what I am saying by the facts. There are several cases I have to prescribe morphine for in spite of the Revenue Department. There is one man seventy-six years old who has been taking morphine ever since the Civil War, who would die if he couldn't get it. And yet the Chief Inspector of the Narcotic Department in North Carolina says let them become criminals, turn them over to us and we will put them in the penitentiary. Take a poor diseased man—a man is as much diseased from a drug addiction as from typhoid fever—put him in the penitentiary, a man who became an addict unconsciously by being given it by some doctor. All of them I have seen have become addicts unconsciously from some tremendous physical strain. I think it is for the medical men of this country to decide it and not for the Revenue Department to do it.

I approve and endorse most heartily the purposes of the Harrison Narcotic Law but not its drastic applications by men that don't know any more about drug addiction than a billy goat knows about the book of Job. I hope this Society will do something to help these poor, friendless, hopeless people. He is no more able to cure himself than he is able to take wings and fly to glory. It is a disease, it is a toxin in the blood, formed by the constant use of morphine and which only

morphine can relieve. I hope this Society will take some action in regard to this important matter.

The purpose of the Revenue Department, it seems to me, is to get and catch and find and do something with these yeggmen and these men who are selling this. I have read about Dr. Soars' Clinic in Baltimore. He had to stop because the Revenue Department said it was the proper thing to do, and the Revenue Department didnt' know anything about it and cared less.

Dr. F. M. Hanes, Winston-Salem: It seems to me that the physician who is not moved to pity in the presence of this miserable class of addicts lacks the normal supply of the milk of human kindness. The present law is very defective. It attempts to enforce the impossible method of ambulatory reduction. Any physician who has conscientiously studied this class of patients knows that this is quite impossible. The next Commissioner of Internal Revenue will probably be a North Carolinian. I have known him many years and can vouch for his being a splendid man. I believe this society should take up earnestly the study of the narcotic problem and present to the Commissioner well considered plans looking to the proper management of drug addicts. Unquestionably this class of patients must be placed under restraint, and the Federal Government, or the State Government, should be required to furnish facilities for long treatment. When I think of the millions of dollars sent annually from this country to disturb the religious belief of savages in Africa and elsewhere, and then meditate on the fact that our churches and charities take no interest whatsoever in the more than one million drug addicts who are under their very noses, it sheds a new light on the expression "cold as christian charity." I shall appoint a committee from this section to consider this problem further.

Dr. J. M. Manning: The Legislature of New York in 1916 appointed a committee to investigate the drug addicts in the State of New York. Mr. Whitley, I think, was the chairman. He held conferences in New York and in Buffalo and a great many large cities, and to these conferences were invited all the medical men that would attend and all the drug addicts, and it is not confined to crooks—the judges on our bench and the preachers on our pulpits are just as much addicts. I do not think morphine ever made a crook. I know men in my community, who are drug addicts today, who are just as honorable as any men in our community. He went about New York, and he wound up by saying in his report that any doctor or druggist

who failed to furnish morphine to a drug addict was unworthy of his profession. That was a layman's report to the Legislature of New York. Mr. Whitley, a layman, was chairman of that committee and he asked that it be continued in order that there might be some further investigations made on the subject.

Dr. L .E. Bisch, Asheville: I thank Dr. Manning for putting heart into the discussion and I thank you, Mr. Chairman, for promising to take such prompt action in appointing a committee. I trust this committee will study the whole question diligently and that it will attempt something of a constructive nature soon. We ought not to wait until next year—we must do something at once. The problem is perhaps worse than one realizes. One must needs know drug cases intimately in order to fully realize the horror of it all.

The committee appointed by the Chairman was as follows:

Dr. F. M. Hanes, Chairman.
Dr. L. E. Bisch.
Dr. J. M. Manning.

BLOOD SUGAR AND BASAL METABOLISM IN CHRONIC PULMONARY TUBERCULOSIS AND HYPERTHYROIDISM

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This paper is based on some of the studies that the Laboratories of the North Carolina State Sanatorium with Miss Maude Mann as technician, have been pursuing during the current year and is a continuation of our work on the differential diagnosis of incipient pulmonary tuberculosis and incipient hyperthyroidism.

First, let us report our findings on the basal metabolic rate in tuberculosis. For this work we used a modified Benedict (1) metabolimeter whereby the rate of oxygen consumption per unit of time is determined. This finding is converted into calories of heat per hour and divided, using Du Boise (2) body area formula, by the square meters of body surface which in turn gives the metabolic rate per square meter of body surface per hour. This determined rate is compared with the known normal rate as given by Aub and Du Boise (3), based

on age, weight, height and sex, and from this the per cent increase or decrease is determined.

The literature on basal metabolism in chronic pulmonary tuberculosis is very meager despite the fact that even as far back as 1882 to 1893 such workers as Muller (4), Kurlov (5), Crudsiev (6), and Bochkarev (7), each found in a very thorough and scientific study of a few cases of pulmonary tuberculosis that the nitrogen metabolism was increased in this disease. McCann and Barr (8) have recently published, among their numerous reports on basal metabolism, a paper on the basal metabolic rate in tuberculosis in which he finds that "The basal metabolism of tuberculous patients may be normal or very slightly above that of normal men of the same size."

Boothby (10) believes that we can gain very little in the diagnosis of incipient pulmonary tuberculosis by the study of the basal metabolic rate.

Our studies have been on twenty-three incipient, seventeen moderately advanced and four far advanced cases, along with six known nontuberculous. This totals fifty cases, three of which are duplicates. In each case a routine duplicate determination was done as a check. This gives a grand total of 100 determinations.

Our findings are as follows: In 59%, three cases of which are suspicious hyperthyroids, of the 54 tuberculous the B. M. R. was increased over 10%; 36%, one case of which had been a very definite hyperthyroid but to whom we had lately given three x-ray treatments over the gland according to Hodges (11), gave normal B. M. R.; and a decreased B. M. R. in 5%. According to classification, we found in the twenty-three incipients the B. M. R. increased in 61%, normal in 35%, and decreased in 4%. The seventeen moderately advanced and four far advanced, grouped together, showed: increased, 57%; normal, 38%; decreased, 5%. We regret that the time limit on papers prevents further case analysis.

Now, let us report our blood sugar findings: In this work we used Epstein's (12) modification of Lewis' and Benedict's (13) method for the reason that our studies, of which this is just a preliminary report, will not permit the frequent withdrawal of larger quantities of blood from the tuberculous. All blood was collected from 1½ to 4 hours after a breakfast light in carbohydrates, and used at once. We have called readings between 0.08% and 0.11% as normal.

In a review of the literature we are unable to find any bibliography on this subject tho Pottenger (9) believes that it is of little value.

This report is based on the blood sugar findings in 72 cases of active pulmonary tuberculosis, and 1 case of apparently arrested tubercu-

losis, and 8 known nontuberculous and healthy adults as laboratory controls and technique checks.

Analysis of the 74 tuberculous cases shows the following: blood sugar increased in 58%, normal in 27% and decreased in 15%. By classification according to the stage of the disease, we find, in the 27 incipient, the blood sugar to be increased in 51%, normal in 33% and decreased in 16%. Of the 46 moderately and far advanced grouped together, 65% increased, 28% normal and 7% decreased. The one apparently arrested case showed an increase.

Blood sugar determinations were made in all the 44 metabolic cases, above reported, with the following results: B. M. R. and B. S. (blood sugar) increased in 32% ; B. M. R. and B. S. normal, 18% ; B. M. R. increased with a normal B. S. 18% ; B. M. R. normal with an increased B. S. 16% ; B. M. R. increased with a decreased B .S., 9% ; B. M. R. decreased with an increased B. S., 4.5% ; B. M. R. normal with decreased B. S., 2.8% ; B. M. R. decreased with decreased B. S., none; B. M. R. decreased with normal B. S., none.

According to classification of the cases, we found the following: in the 22 incipients; increased B. M. R. and increased B. S., 36% ; increased B. M. R. and normal B. S., 18% ; normal B. M. R. and increased B. S., 18% ; normal B. M. R. and normal B. S., 14% ; decreased B. M. R. and increased B. S., 5% ; increased B. M. R. and decreased B. S., 4.5% ; normal B. M. R. and decreased B. S., 4.5%. There were no incipient cases with a decreased B. M. R. and a normal or decreased B. S. In the 21 moderately and far advanced, grouped together, increased B. M. R. and increased B: S., 24% : normal B. M. R. and normal B. S., 24% ; increased B. M. R. and normal B. S., 19% ; increased B. M. R. and decreased B. S., 14% ; normal B. M. R. and increased B. S., 14% ; decreased B. M. R. and increased B. S., 5%. None of this class fell in the following classes: normal B. M. R. decreased B. S., decreased B. M. R. normal B. S., and decreased B. M. R. decreased B. S.

To convert the above figures into words, one would say: in about one-third of the cases of chronic pulmonary tuberculosis the B. M. R. and the B. S. are *both* increased; in about one-fifth of all such cases there may be an increased B. M. R. and a normal B. S., or just the reverse, while in a much smaller percentage of cases, you may find any change in either B. M. R. or B. S., however very seldom would both be decreased, or even one decreased and the other normal.

To explain why we found a large per cent of incipient (and other) cases of pulmonary tuberculosis to have an increased B. M. R. and B. S., as well as the numerous variations of each named above, is

extremely difficult, if not impossible. However, we would advance the following theory: pathologists are agreed that the liver is very resistant to the Bacillus Tuberculosis, while the adrenal glands are very susceptible. Knowing that the Bacillus Tuberculosis thrives best where his toxins destroy tissue most easily, it is logical to believe that the tuberculo-toxins comparatively easily affect the adrenal glands. Believing this to be true, by deductive reasoning from chemical and physical pathology, it seems probable that the increased B. M. R. and increased B. S., as well as their several variations cited above, are produced by a stimulation (which is the mildest action a poison or toxin can have) of the adrenals by the tuberculo-toxins. This would result in an increased output of the secretion from these glands which in turn would do three things: (1) inhibit the islands of Langerhans; (2) stimulate glycolysis, and (3) stimulate the thyroid gland to greater activity. This latter action (stimulation of the thyroid gland) would in turn act to prevent or lessen glycogenesis, as well as produce the many hyperthyroid symptoms we frequently meet in incipient, and other cases of chronic pulmonary tuberculosis.

When you heard the phrase, "stimulate the adrenals," you probably immediately thought this: "That theory is incompatible with the established fact that there is usually a vascular hypotension in pulmonary tuberculosis," and you can furthermore get the case records of the State Sanatorium, showing over 6,000 blood pressure readings, as additional evidence of this hypotension. Hamener, Hoskins and McClure (14), as well as Trendelenburg (15) have found that the secretion of the adrenal glands does not play an appreciable factor in the maintaining of vascular tension, and they furthermore report that a sufficient concentration of adrenal secretion in the blood to influence blood pressure, will cause a suppression of intestinal peristalsis. Therefore an increased output of this adrenal secretion, caused by stimulation from the tuberculo-toxins, need not cause any blood pressure changes.

Remembering the well established fact that hyperthyroidism consistently shows both an increased B. M. R. and an increased B. S., it is impossible for us to draw from our work any other conclusion than this: the determinations of B. M. R. and B. S. are of no practical value in the differential diagnosis of chronic pulmonary tuberculosis and hyperthyroidism.

It would be extremely ungrateful of me to fail to give my sincerest thanks to my father, Dr. L. B. McBrayer, for his invaluable aid in many helpful suggestions, for aiding materially with the actual laboratory work and with the review of the literature.

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DISCUSSION

Dr. A. A. Barron, Charlotte: Dr. McBrayer is to be congratulated on the report of his work in this particular field. The glands of internal secretion particularly the thyroid are considered the controlling factors in regulating metabolism. Thus in thyroid disorders we find the greatest significance of basal metabolism fluctuations. Variations are, also, noted to a less extent in other glandular disturbances. To a certain extent variations are noted in febrile and afebrile conditions, leukemias and hypertension. In a rather limited number of tubercular cases studied the metabolic rates, as observed by me, were all within the normal limits, but all were on the plus side. This, to a certain degree, coincides with Dr. McBrayer's findings. As to the pathological changes taking place causing an increase in basal metabolism, Dr. McBrayer's theory advanced sounds as plausible as any set forth heretofore.

Dr. J. M. Northington, Charlotte: I would ask Dr. McBrayer to tell us what his range of blood sugar was—he said he took as normals from 0.08% and 0.11%—and roughly what proportion of these cases that showed elevation of the blood sugar.

Dr. L. E. Bisch, Asheville: Dr. McBrayer's paper opens up such an enormous field that it would seem we might discuss it from many angles with profit.

I was particularly interested in the theory which he enunciates because, apparently, there is some connection between tuberculosis and the adrenals. Sergent has claimed that adrenal insufficiency is the rule in tuberculosis.

The differential diagnosis between hyperthyroidism and incipient pulmonary phthisis has already been emphasized. Personally, I think we are tending to overemphasize this increase of thyroid activity for there are cases that may present typical symptoms of hyperthyroidism, even to exophthalmos, and yet be hyperadrenal rather than hyperthyroid states.

A problem which naturally presents itself in connection with the Doctor's paper is why we may sometimes get an hyperadrenalism in tuberculosis when insufficiency is the rule? Cannon has demonstrated that in states of fear, apprehension, etc., an increase of blood sugar is found, this increase being present in order to tone up smooth muscle tissue in preparation for suspected fight or flight. In my work in Asheville among tuberculous neurotics I have been able to satisfy myself—which corroborates the experience of others—that every tuberculous individual harbors some form of a fear of death, either consciously or unconsciously conceived. The alleged "spes phthisica" is therefore not altogether a myth but is, rather, an overcompensation for the dread fear that haunts them all. Thus, then, an overcompensation of unwarranted hopefulness on the psychic level might find its counterpart in a compensatory hyperadrenalism thus increasing blood sugar content so as to counteract the death fears.

In conclusion I would like to ask Dr. McBrayer what his experience has been with the Goetsch test and whether in his opinion it is a reliable differential indicator between tuberculosis and hyperthyroidism.

Dr. R. McBrayer: I want to thank Dr. Barron of Charlotte for his kind remarks. Those of us in the institutions ought to do more, especially those who are drawing our pay from our citizens.

As to the range in blood sugar I found there is probably no difference between the incipient, moderately advanced or far advanced. The range was from .11% up to and as high as .174%, and it ran that way in the incipient, the moderately advanced and the far advanced. Blood sugar was not increased to a greater per cent in the incipient than the far advanced cases.

I want to thank Dr. Bisch very kindly for his remarks. I reported last year to this Society on the Goetsch test. I concluded that it was of no value. Since that time several articles have been published stating the same thing.

FURTHER OBSERVATIONS ON A DIRECT METHOD OF BILIARY DRAINAGE

Dr. Heath Nisbet, Charlotte

(Read by Title)

A paper on this subject would be incomplete without a brief survey of the development of the duodenal tube, which makes this method possible. John C. Hammeter[1] of Baltimore, was the first clinician to attempt the construction of an instrument with which to obtain duodenal contents and he recovered such contents in 1897. His instrument was not good for all practical purposes and he abandoned it in 1898, in favor of Kuhn's instrument, which consisted of a metal spiral fitted inside an ordinary large stomach tube[2]. To Max Einborn this did not prove satisfactory and from 1904 to 1908 he conducted a series of investigations on the permeability of the pylorus[3], in 1908 developing a duodenal bucket[4] and in 1909 a duodenal tube[5] with perforated metal tip, demonstrating its use at the Lenox Hill Hospital in New York City before a group of clinicians. Desirable modifications were suggested by Gross in 1910[6], in 1914 by Palefski[7] and Rehfuss[8] and in 1919 by Lyon.

Before going further full credit must be accorded Einhorn[9] for the pioneer work on duodenal drainage, duodenal alimentation and the study of pancreatic enzymes. He has evolved a very practical way of determining the presence of these various enzymes and their amounts. He has studied normal and abnormal biles which he found present in the fasting duodenum and further he has pointed out the different colors of bile found in catarrhal jaundice, cholecystitis, etc., but there was no proof that he was draining the gall bladder and his studies on bile did not progress far enough to be of real diagnostic value. He was on the threshold of the work elaborated by Lyon.

To S. J. Meltzer[10] must go the credit for the suggestion "that the local application of a 25% saturated solution of Magnesium Sulphate, directly to the duodenal mucosa—without first coming into contact with the gastric mucosa—would relax the duodenal wall and with it the sphincter of the common bile duct." He did not add that it would contract the gall bladder, but called attention to the law of contrary

inervation, which had been worked out by Oddie in 1887 and later confirmed by Doyen and Freese. They prove that the gall bladder receives both motor and inhibitory fibres by way of the splanchnic nerves, which emerge from the spinal cord in the roots of the sixth thoracic to the first lumbar and past to the celiac plexus. They further show that stimulation of the peripheral end of the splanchnic nerve in the duodenum causes simultaneously a relaxation of the sphincter of the common duct and a contraction of the gall bladder. This suggestion was followed by Lyon and from it his method was elaborated.

The method in some detail is as follows: The patient presents himself in the morning, having fasted 12 hours; the mouth is disinfected with a zinc chloride solution followed by sterile water. The tube is then swallowed 55 cm. to the stomach, the fasting contents are removed and stomach is washed thoroughly with warm water until it returns sparkling clear. Further disinfection is attempted by washing with one to ten thousand solution of KMno4, followed by a weak solution of Lavoris and again washed with water. Patient drinks 4 ounces of boiled water, lies on right side, with hips slightly elevated and slowly swallows tube to 75 cm. mark; this should require at least 20 minutes—so that peristaltic waves will carry the Olive tip on the end of the tube through the pylorus. The tip should be in the duodenum in less than 30 minutes, failure to reach the duodenum in this time suggests obstruction, usually due to pyloro-spasm, pyloric stenosis or adhesions. The air test is used to determine the presence of the tip in the duodenum. A syringe of one ounce capacity is attached to the tube and the air pushed in slowly. If the tip is in the duodenum, the rush of air will be heard through the stethoscope (which is placed over the duodenal region) followed by showers of crackling rales, due to the peristalsis set up in the duodenum by the air. If the tube is still in the stomach, a bubbling sound is produced by the air coming through the water.

The duodenal contents are aspirated and set aside for later study; then the duodenum is locally douched with 75 c.c. of a 33% solution of Magnesium Sulphate, which serves to relax the duct sphincter and by the law of contrary inervation to cause contraction of the gall bladder. Before all the Magnesium Sulphate runs in, the tube is connected to the first aspirating bottle and the Magnesium Sulphate drains back by siphonage. The appearance time of the bile is noted, which normally is 2 to 10 minutes. When the bile of a light yellow color appears, the tube is connected to bottle "A" and the bile is collected until it changes to a darker color and a thicker consistency,

when the tube is connected to bottle "B"; this darker bile usually flows about 20 minutes, when it suddenly changes to a light lemon yellow color, then connection is made with bottle "C" and the drainage can be continued further if necessary. The intestines are then flushed with Ringer's solution, using about 300 c.c. of water. All materials used in this work are sterile.

The "A" bile, of necessity, comes from the common bile duct, with possibly a few c.c. from the hepatic ducts. The "B" bile must come from the gall bladder and this has been convincingly proved by Lyon. The "C" bile is that from the hepatic ducts and that freshly secreted from the liver capillaries. The contents of each bottle can now be separately studied, microscopically, culturally and chemically. There should be no doubt that the biles "A" and "C" are from the common duct and liver capillaries respectively, but proof is naturally expected in order to show that the "B" bile is from the gall bladder. In support of this contention, I will cite four reasons and will quote freely from Dr. Lyon in doing so.

First.—If this law of contrary inervation is a tenable one, if the action of magnesium sulphate serves to relax the tonus of the sphincter of the common duct, then it must serve to contract the gall bladder walls and expel its contents, depending on the tonicity of its walls and on whether the cystic duct is patulous.

Second.—The color and viscosity of this "B" bile indicates a higher concentration and strongly suggests it as coming from its storage chamber, the gall bladder. In certain pathological states, as high grade biliary stasis and cholecystitis, the bile is thick, at times almost tarry, greenish black and of the consistency all of us have seen scooped out of the operated gall bladder. Further, cases are recalled where drainage has shown this "B" bile of a thick tarry consistency, which culturally contained streptococci and at operation, a few days later, this same type of bile, with streptococci was found in the gall bladder.

Third.—The gall ducts are 8½ inches in length and less than ¼ of an inch in diameter and it is hardly possible that from 4 to 10 ounces of bile could come from this portion of the biliary tract alone.

Fourth.—This second type of bile has never been recognized in cholecystectomized patients, but we pass from the light yellow of the common duct to the lemon yellow of the capillaries. This proves that the gall bladder can be medically drained and we will now briefly consider the types of cases where it may help in diagnosis and treatment:

In catarrhal jaundice where the ducts are plugged with mucus, frequent stimulation will relax the sphincter and simultaneously con-

tract the walls of the gall bladder and the bile, thus expelled will clear out much of the mucus. Lyon in a series of cases treated by this method decreased the duration of jaundice by 52%; those treated by the old method of salines, etc., lasted 35 days; those treated by the new method only 17 days.

Atony of the gall bladder with its bile, large in amount, static in character, and intermittent in discharge offers a particularly favorable field for this work, for it is generally admitted that biliary stasis, plus catarrh, plus infection leads to gall stones. And we claim that by the use of the Lyon method we can tone up the gall bladder and by causing it to contract at regular intervals can establish proper drainage, thus we attack the pre-gall stone period and prevent the full blown case seen at operation.

Empyema of the gall bladder where the cystic duct is open and condition of the patient, due to cardiorenal, or other disease, would not permit an operation, have been tided over until surgical contraindications are removed. [14]In cholecystitis the "B" bile would show swarms of bacteria in addition to being static in character.

In choledochitis, or infection of the common duct, the "A" bile will show a large amount of mucus and swarms of bacteria.

In post-operative cases, where the gall bladder has been removed, or merely drained, we often have infection left and it has been shown in a few selected cases, that repeated drainages, in addition to autogenous vaccines have cleared up these cases. Lyon cites a case where four operations were performed upon the biliary apparatus, without permanent relief, while under frequent drainages, plus vaccines, the patient has been practically, relieved.

It has been shown that cases presenting symptoms of the early and late migranoid types have been greatly benefitted and some cases entirely relieved of symptoms by repeated drainages. In our own series, this type of case has given best results.

In regard to the limitation of this method, it can be easily seen that where the cystic duct is obstructed, by pressure from the outside, or by large stones, and where similar conditions are found in the common duct, this method cannot be utilized for gall bladder drainage, but if after repeated stimulation the "B" bile is not recovered, we can be reasonably sure that there is obstruction of the cystic duct, either from stone, adhesions or pressure from without, or where the gall bladder is entirely filled with stones, or where the bile is very thick, or that the gall bladder musculature is too weak to contract.[15]

In my own series, during the last four (4) months, I have done eighty (80) drainages in 35 cases. We have gotten excellent result

in those cases complaining of periodic headaches, associated with nausea, where all previous forms of treatment have failed. We had one case of obstructive jaundice of 6 weeks duration, on which all other medical treatment had failed. She had been advised to have an operation, but refused; this case was entirely cleared up in 10 drainages covering a period of 4 weeks and has remained in good condition since. This method is presented with the hope that you will give it a trial and thus find out for yourself its value.

CONCLUSIONS

1. The gall bladder can be drained by a simple, direct, non-surgical method.
2. Direct drainage offers an aid in the diagnosis of biliary diseases to supplement clinical and x-ray methods.
3. It may be found to cut down the incidence of stone formation by correcting early cases of gall bladder stasis.
4. It may be used as the alternative method of treatment in many of the biliary tract diseases, where it is not definitely decided that surgery is necessary, or where surgery is contra-indicated.
5. It may be used as a supplementary treatment in post-operative cases, where infection remains and surgical drainage is closed.
6. It is of definite value in differential diagnosis.
7. It offers further an opportunity to study normal bile, the action of cholagogues and parallel studies on the liver and pancreas.

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LETHARGIC ENCEPHALITIS
DESCRIPTION—DIFFERENTIAL DIAGNOSIS—CHRONICITY

A. A. Barron, Charlotte

(Read by Title)

The clinical picture of lethargic encephalitis presents many varieties. Literature abounds with examples of its polymorphous character. In view o f the latter, errors of diagnosis are likely to be made. A presentation of all possible occurrences, with emphasis on the differential diagnosis, may be warranted and this is the chief object of the present contribution.

Three principal symptoms—rise in temperature, occular palsies and somnolence—constitute the general characteristics of the disease. The onset is characteristic of an infectious process—the fever is accompanied by headache, backache and sometimes vomiting. After the disease has reached the phase of full development, it presents the above mentioned trio of symptoms. During this period the polymorphism of the principal manifestations and of additional phenomena sometimes presents diagnostic difficulties.

Somnolence appears in various degrees. In mild cases the patient has merely a frequent desire to sleep, although he may attend to his daily occupation. In others the somnolence may be more pronounced, the patient falling asleep with the greatest ease. In some cases the patient is in a state of absolute inertia.

Palsy of ocular muscles is a common symptom in lethargic encephalitis, which is usually an early manifestation. The most frequent symptom is ptosis, unilateral or bilateral. Diplopia is, also, a frequent symptom—strabismus may be observed. The third cranial nerve is more frequently involved than the fourth and sixth. The various muscles supplied by the third nerve are usually unequally involved in the same eye or in both eyes.

The internal muscles of the eyes are less frequently involved. Inequality of the pupils—myosis, paralysis of accommodation, nystagmus may be observed. In addition to the ocular nerves other cranial nerves may be affected in the following order: facial, hypoglossus, branches of the trigeminus, glosso-pharyngeal and spinal. Facial paralysis, difficulty in swallowing, in masticating, in breathing, in speaking are then observed. In the latter case it may give the impression of pseudo-bulbar paralysis. Facial palsy may be bilateral.

Sensory disturbances are usually rare. In some cases, however,

there have been reported large areas of anesthesia and in others areas of hyperasthesia so that the least touch produced pain. Excessive salivation, involvement of the sphincters in grave cases have been noted.

A number of other manifestations of a motor or psychic character are met with at times either in the early course or during phases of exacerbation. Thus in one case observed facial characteristics, tremor of hands and head, typical of paralysis agitans developed. In another case observed there was marked muscular twitching; in another choreic movements were seen throughout the entire course; in another marked pain appeared in the arms; in another psychotic symptoms appeared during the first week. The patient was disorientated, confused and frequently wandered out of the house. Other cases have been reported with one-sided paralysis, Jacksonian epilepsy, cerebellar ataxia, meningeal symptoms, deafness, paralysis of lower extremities and symptoms of anterior poliomyelitis.

In a certain number of cases the trio of symptoms has not been complete. For instance, cases have been reported without opthalmoplegia or without lethargy or else with very slight somnolence. In one case observed the patient suffered with insomnia and sedatives were required to produce sleep. Abortive forms have, also, been reported.

DIFFERENTIAL DIAGNOSIS

In making a diagnosis of encephalitis lethargic, one should bear in mind the three fundamental symptoms—somnolence, ocular paralysis and rise in temperature. The blood shows no significant change. The cerebro spinal fluid is usually clear without undue pressure and as a rule there is some increase cell count, lymphocytes in type. Observers have noted that this lymphocytosis occurs early, gradually diminishes and disappears. This fact is important for in meningitis the reverse is true. In a certain number of cases the spinal fluid has been found to contain an increased amount of sugar. This is important, also, as in meningitis the contrary is true. In the tubercular form of the latter somnolence is usually present but the abundant lymphocytosis and tubercular bacillus in the spinal fluid, the disassociation of the temperature and pulse, also the irregularity of the latter, are all absent in lethargic encephalitis. In case of doubt as to the possibility of syphilitic meningitis, Wasserman reaction and treatment of antiluetic remedies will ascertain the nature of the condition. Epidemic cerebro spinal meningitis is characterized by a cloudy spinal fluid, marked leucocytosis and meningococci.

Cerebral abscess may also simulate lethargic encephalitis because of the somnolence, but the eye ground changes, the condition of the blood, slowness of the pulse will enable one to recognize the former. Tumor of the brain may, also, simulate encephalitis, in view of the motor disturbance and the drowsiness, but severe headache, optic neuritis or atrophy are encountered only in cerebral neoplasm.

Lethargic encephalitis may be confounded with hemorrhagic superior polioencephalitis but the latter runs its course without rise in temperature and is accompanied by marked nervous manifestations in the motor and sensory spheres, such as ataxia, unilateral paralysis of the extremities, abolition of tendon reflexes, disturbance of speech, mastication. Finally, there are present grave ocular lesions. Infantile paralysis in its bulbar and pontine varieties may sometimes give the impression of encephalitis, but the predilection for early childhood, its occurrence chiefly in warm seasons, absence of meningeal reactions, paralysis and atrophy of the affected extremities are all characteristic of the former.

Comatose states are differentiated from encephalitic lethargy by total loss of reaction to sensory stimulation, while the essential characteristic of somnolence in encephalitis consists of responsive reactions to stimulation; the patient can be aroused for partaking of food, and to answer questions. Besides, profound coma is associated frequently with conspicious motor disturbances due to profound cerebral lesions. Neither do we find the occular disorders characteristic of encephalitis. Intoxications may be accompanied by a state of stupor stimulating lethargy. The mental state following the administration of opium and chloral is analogous to, in fact identical, with that in encephalitis.

Stupor due to cerebral syphilis may present grave obstacles in formulating a diagnosis. In both conditions somnolence and palsies of occular muscles are found. The stupor, however, in syphilis is continuous and if the patient is roused the mental condition is pronounced and patient is unable to understand fully what is spoken to him. In encephalitis the patient, as a rule, answers questions correctly and takes his food properly. Finally, the cerebro spinal fluid will decide in favor of syphilis.

CHRONICITY

Records show that there is a mortality of about 20% in acute cases and 50% show an incomplete recovery (two years' observation). The signs that tend to persist may be classified into three groups: The somatic, endocrine, and mental. In the somatic group we find various eye disturbances, tremors, disturbance of gait, Parkinson's syndrome,

chorea, epilepsy, aphasia and all the various sensory disturbances. Among the endocrine signs are obesity, menstrual irregularity, amenorrhea, polyuria, low blood pressure, and irregular pulse. Among the mental symptoms, those observed during the acute stage may long persist. In fact, in quite a few they are existing, at least, two years after recovery from acute illness. These symptoms consist of various confusional psychoses, marked irritability, depression and anxiety states.

SURGERY

Dr. J. T. Burrus, High Point, Chairman

Chairman's Address

EARLY HISTORY OF SURGERY

J. T. Burrus, High Point

The earliest records relate to surgical operations in Egypt. Human skulls have been found belonging to the Meolithic Age, which have been trephined for, it is supposed, epilepsy, headache, etc. The pyramid builders practiced circumcision as a religious rite. The Ebers, 1552 B. C., contains many receipts for disease, which must be very old. There is a direction in it for removing fatty tumors from the hand. Physicians embalmed Jacob. These physicians were dressers of wounds. A treatise on anatomy was, according to Mantho, attributed to Athothis, the son of Menes, who reigned in 5241, B. C.

Usually priests were medicine men in old times, as disease was considered a punishment sent by the Gods. But there were at all times some physicians, it seems. Medicine does not seem to have been studied among the Jews as a separate profession until the rise of the Alexandrian School. The science of medicine owes nothing to this nation until after this period. In the Talmud prior to 200 A. D., the rabbis show knowledge of wound sutures and freshening of their edges. They know the operation for imperforate anus and anæsthetic substances. They supplied artificial parts in loss of the trachea and cranial bone substance, they knew artificial teeth, wooden legs, and other substitutes for the lower extremities.

Greek surgery: Allusion in the poets of Homer, about 1000 B. C. Aesculapius was distinguished physician, so were his sons Machaon and Podaliriuse. They were surgeons and warriors. They knew how to dress and bandage wounds, so did some women. The different parts of the body are known, also in the animal, horses, and cattle. The injury to Nestor's horse to the cerebellum is described in its consequence of a rotatory movement of the injured animal.

In the Hippocratic collections renal colic is described and pus evacuation by incision. Hippocrates' father and grandfather had been physicians before him. The "Hippocratic Writings" date from the time of Aristotle. They treat especially of surgery, on injuries of the head, on fractures, on the articulations, dislocations, wounds, ulcers, fistulæ and hemorrhoids. The sutures of the cranium and the bones

of the skull are described. He devides injuries of the bones of the skull into simple fissures, contusions, without fracture or depression, fractures with depression, indentations of the outer table and those by contrecoup. Trephining is resorted to in most cases. Congenital dislocations are mentioned, so is gangrene.

Surgery of India and China: An old book is the Veda. The time of publication has been estimated at from 1000 B. C. to 700 B. C. There is a chapter on surgery in this. Instruments described are various. Lithotomy, sub-pubic operations, rhinoplasty, herniotomy, fractures, dislocations, punctures, etc., are mentioned in Indian medical books.

Cornelius Celsus, probably living in Rome at the beginning of the Christian era, compiled large volumes of ancient medical writings.

About 1000 years after Hippocrates hemorrhage had been controlled by ligatures and cautery. Castration was improved on, styptics and gypsum flour are used to control bleeding. Gangrene is treated by making an incision at the border of the diseased area. Galen writes on aneurysm. Incisions were advised between two ligatures. Spinal fractures are mentioned by Paul, and extracting of the compressed bone advised. Celsus describes carcinoma, and says that there are two kinds, one curable and the other not. Cystic tumors, atheroma, and steatoma are described. Lithotomy was left to men who made this an especial business.

The most celebrated Arabian writer on Surgery was Albricasis or Bulchasis. He speaks of arteriotomy upon the temporal arteries. Silk or cat-gut used for the ligature. He speaks of an operation for scrofulous tumors of the neck. He also speaks of operations on the trachea, of removal of certain fungoid abdominal tumors and calculus of the bladder. A woman performed the operation under the direction of a surgeon. In Spain surgery advanced rapidly under Mohammedanism. In the rest of Europe medical art was in a barbarous condition.

The surgical writer of the West, Roger of Parma, published a book in Venice in 1490. His pupil Roland of Parma succeeded him. Guy de Chauliac is one of the well known French medical writers.

In 1306 Bernard de Gordon was a distinguished professor at Montpellier. Master Jean Yperman from Flanders studied under Lafranc in Paris. Giu de Chaulic was the great French writer of the fourteenth century. He was the physician of Pope Clement VI, Innocent VI, and Urban V. At this time surgery in the West of Europe was distinct from medicine, and deemed a handicraft, unworthy of the physician. As the physicians were of the priestly class, they abhorred

shedding of blood. The barbers were generally the operators. In 1311 Pitard however, obtained a decree from King Philip the Fair, that surgeons must undergo an examination by the Paris established surgeons. It had to be repeated at several different times. In 1505 the barbers came formally under the jurisdiction of the faculty. The medical officers attached to the French armies came from the Corporation of Barbers.

Among the prominent surgeons of the sixteenth century are Gaspar Tagliacozzi (15-16-99) professor of anatomy and surgery in the University of Bologna (plastic surgery, especially rhinoplasty), whose works were published in various editions. At this time many traveling operators for lithotomy and hernia were known all over Europe. An unnamed cutter of stones seems to have taught John de Romanes of Cremona the operation with a grooved staff for lithotomy. Marcus Sanctus learned it from him.

Ambrose Page (1517-90) worked in the Hotel de Dieu and studied at Paris in the barber surgeon school, at 19 he became body-surgeon to Mareshal Monte, Jen Pare did away with cauterization of gunshot wounds, substituting oil. He was the first to use ligatures on arteries instead of red hot iron searing after amputation. He was a good anatomist and was a friend of successive kings. The first teaching of French was by Jean Canape of Lyon, physician to Francis I, and in 1570 Jacques Oalochampo, physician and reader in surgery, published a Chirurgie Francoise. Many French books on surgery followed.

In Germany surgery came into renown in 1469. The first German surgeons of repute being Hieronymus Brunschiwd and Hans von Gersdorff, both at Stansbourg. The latter was an army surgeon in 1476-77 and a writer. He gives instructions for extracting bullets.

At the beginning of the seventeenth century the most distinguished Italian surgeon was Hieronymus Fabricius d'Aqua pendente 1537-1619. He was a pupil of Fallopius and succeeded him as professor of anatomy at Padua. He was the discoverer of the values of the veins and the teacher of Harvey. His writings are principally on anatomy and embryology, but he was also a professor of surgery. He speaks of wounds of the intestines and animal sutures, and inserting a piece of the trachea of an animal. He advocated tracheotomy. He maintained that gunshot wounds were not poisoned. He simplified wound dressing.

Spigelius (1578-1625) was a native of Brussels, and professor of anatomy and surgery at Padua. Trephining was at his time a common operation in cases of insanity, severe headache, chronic diseases of the eyes, as well as for injuries of the skull.

Pietro de Marchetti (1589-1673) professor of surgery at Padua, published a collection of cases, one was a successfully trephining after a dagger-wound of the head two or three months previous.

In France progress in surgery was established only near the end of the century. Barbers and surgeons had been put under the same head by the medical men. The most complete manual in French prior to that of Dionis, is that by M. de la Vauguion in 1696. Nicolas de Blegny (1652-1722) surgeon of the duke of Orleans, in 1683 founded the first medical journal and published a treatise on venereal diseases in 1673, also a treatise on hernia with his invention of a truss.

In Holland, Carolus Battus, a surgeon of Dortrecht, published in 1590 his handbook. In the middle of this century Holland became celebrated as a centre of anatomical and surgical teaching, through the labors of Tulp and others. The schools of Amsterdam and Leyden became famous. Paul Barbette was a son of a Strausburg physician, studied at Montpellier and Paris and settled in Amsterdam. His works were translated into 10 languages. He first described femoral hernia, suggested laporotony in intestinal obstruction, and extirpation of the spleen.

Fabricius Hildanus (1560-1624) is one of the Fathers of German surgery. He was a Swiss by birth and trained by Griffon in Geneva. He was a skillful operator working in Cologne. He strongly opposed Paracessus and Wurtz. He advised early amputation in gangrene, making the incision in the sound flesh. He urged the study of anatomy on German surgeons.

The most celebrated German surgeon of the latter part of this period was Matthews Gottfried Purrman (1648-1711), officer in the Brandenburg Army in 1675, and city physician at Breslau. He published a book on war surgery, and used styptics and bandages to control hemorrhage after amputations.

The oldest English medical book is perhaps the Leechbook written 970 A. D. It contains a method of treating hare-lip by suture and ointment. In the physicians of Myddvai of the thirteenth century there are references to surgical operations.

It contains an anæsthetic made of herbs and clean earth which is first administered per os and when the operation is going on by way of the nostrils. To awake the patient a sponge with vinegar is passed into the nostrils, or an onion with vinegar is poured into his mouth.

The first surgeon in England was John of Arderne (or Arden) born about 1308. He practiced in Newark and in London. He wrote a treatise on surgery, also on fistula. He slit the fistula or passed a thread through it, so as to cut the flesh. He described cancer of the

rectum. The best known English surgeons of the fifteenth and sixteenth century are Vicary, Gale, Cloves and Love. Thomas Glæ served in the army of Henry VIII in France in 1544 and under Philipp II of Spain. William Cloves (1540-1624) was at first a naval surgeon and then at St. Bartholomew's. He wrote a textbook on surgery in France and Flanders. He in 1596 at London published a treatised on Spanish Sickness and a textbook on surgery. In 1598 he founded the Faculty of Physicians and Surgeons of Glascow which was chartered by King James VI in 1599.

Surgical corporations in England begin with the Barber's guild which at first met for social and religious purposes, originating about the thirteenth century. But some were not barbers and had served in the army. They obtained a charter of incorporation from King Edward IV in 1462. This refers almost entirely to surgery. The Guild of Surgeons in 1492 were granted arms. It seems it was a group of 8 or ten socially distinguished men. In 1540, under the reign of Henry VIII, barbers and surgeons united and incorporated by act of Parliament as a company of Barber Surgeons. Their first master was Thomas Vicary.

Tables of Surgery of Horatius Morus, a Florentine physician, translated by Richard Caldwell, were used for purposes of teaching at the surgeons' hall.

In 1643 Edward Anis gave the corporation the sum of 250 pounds for the purpose of having a human body publicly dissected, and six lectures thereupon read each year.

Dr. Gale in 1698 founded the Gale Lectureship, the lectures are known as the Anis and Gale lecturers. One of these Barber Surgeons was Alexander Read (or Rhead), who in 1620 graduated at Oxford. He published several works on surgical operations. He said that a bullet could be so made as to render it poisonous. The corporation examined and licensed naval surgeons for the royal and merchant ships.

In Scotland the University of Aberdeen was founded in 1494 and in 1505 it had a professor of medicine. King James III is reported to have been a good surgeon, extracting teeth, etc.

The first chapter of the Royal College of Surgeons of Edinburg is dated July 1st, 1505. By 1589 it had become the custom to admit barbers at a lower rate, but they had only the right to act as barbers.

John Woodall had served as an army surgeon, and about 1612 was elected surgeon to St. Bartholomew Hospital and likewise surgeon general to the East India Company. In his "The Surgeon's Mate or Military and Domestic Surgery" he recommends ligature of the

large vessels, especially those of the thigh, should one, however, not succeed, he advises to put in buttons of astringent and caustic powders.

The greatest English surgeon of the seventeenth century was Richard Wiseman (1622-76), sometimes called the English Pare. He wrote treatises on ulcers, diseases of the anus, of the King's evil, of wounds, of gunshot wounds, of fractures and luxations, of lues venera. He used complicated wound dressings, and canteries and styptics instead of ligatures. He greatly promoted the interest of the Barber-Surgeon's Company, being in great favor with the King.

SOME PHASES OF GALL-BLADDER SURGERY

Numa D. Bitting, M. D., F. A. C. S., Durham

In this paper attention is directed chiefly to the various pathological conditions involving structures external to but originating in the gall-bladder and bile ducts and the diseased gall-bladder itself.

The physiologists have tried in vain to discover some important gall-bladder functions while the pathologists have shown conclusively that it is a store-house of infection and a source of body contamination when diseased.

Many pathological lesions in other structures can be traced more or less directly to a known gall-bladder infection.

The pyloric end of the stomach being closely related to the gall-bladder sometimes becomes involved. This may occur in the form of an ulcer with subsequent pyloric obstruction resulting from adhesions or malignant disease.

The duodenum may become ulcerated due to infection or stone in the ampulla or acutely angulated by adhesions resulting from inflammation.

Likewise the pancreas, being intimately related anatomically, may become diseased—the infection traveling by continuity of structure. This may occur in the form of an acute hemorragic, subacute or chronic pancreatitis. Rarely cystic degeneration takes place. We have seen a large pancreatic cyst associated with gall-stones, and a markedly diseased gall-bladder.

Liver abscess, lung abscess, subphrenic abscess, pneumonia, pleurisy, endocarditis and myocarditis may, in rare instances, develop as a result of ascending infection. Local and wide-spread peritonitis some times develops because of an empyema or a stone ulcerating through the gall-bladder, common duct, or duodenum. Infective arthritis arising, insidiously, as it does in some cases, can rarely be

traced to a chronic cholecystitis. Also malignant disease may develop as a result of gall-stone irritation. Frequently a generalized toxemia of a mild type is seen.

In view of the fact that so many pathological processes have their origin in the gall-bladder and the method of drainage having proved itself entirely inadequate, because of the recurrence of symptoms, total extirpation has come to be the method of choice in a large percentage of cases. However there is a small group of cases in which it is more expedient to drain. These we describe briefly as poor surgical risks from any cause when haste is necessary and badly infected cases where protective adhesions can not be safely released and probably for the relief of pancreatic disease.

The indications for removal of the gall-bladder are much more numerous and should receive the most careful consideration of the surgeon. What then are the chief indications to be noted? The presence of stones in the gall-bladder, the blocking of the cystic duct by adhesions or stone, phlegmonous inflammation, gangrene, ulceration, chronic cholecystitis with atrophy or hydrops, empyema with markedly diseased walls, early malignant disease confined to the gall-bladder, benign neoplasms, the unfortunate cases which receive little or no benefit from drainage and those followed by biliary fistula.

The common duct becomes involved in a certain percentage of cases. Inflammation of the duct when acute is usually accompanied by fever, jaundice, pain and tenderness in the region of the gall-bladder and duct. If the duct be obstructed by stone the jaundice will often, but not always, persist for an indefinite time and the condition become chronic unless the obstruction be relieved by passage of the stone. The duct may dilate and allow the bile to escape by the stone, thereby relieving the jaundice. We operated one case in which two stones, lodged in the ampulla, had perforated the intestinal wall. For this reason careful exploration should be accomplished and if necessary, drainage provided by means of a small rubber catheter or T drain. It is not necessary to drain the duct in all cases in which we elect to remove the gall-bladder. In cases of obstruction and associated jaundice the coagulation time of the blood must be definitely ascertained.

Cholecystectomy is but slightly more difficult than drainage when the liver is drawn down and the proper exposure obtained. Care should be exercised in freeing adhesions about the duodenum and pylorus. The junction of the cystic duct with the common duct is exceedingly variable and for this reason it should be identified in order to avoid injury or ligation of the common duct. The cystic

duct may be ligated separately or jointly with the cystic artery, though it is preferable to ligate them separately.

The gall bladder may be freed from its attachment to the liver by working from the fundus to the neck. A few cases can be more safely operated this way. However, a great majority of the cases can be safely and more rapidly operated by grasping the neck at its junction with the cystic duct and freeing it from this point to the fundus. It is preferable to suture the raw surface along the liver groove.

The question of drainage after cholecystectomy is worthy of our consideration. Some cases will do well without it; some will do badly without it. If the infection, which is ever present, be very virulent, drainage will be required. Regardless of how securely the cystic duct is ligated, leakage sometimes occurs. The small cigarette or rubber tissue drain acts as a safety valve and does little or no harm.

DISCUSSION

Dr. L. A. Crowell, Lincolnton: This is a very interesting subject. I wish I were able to discuss it as it should be discussed. Of course, the question of removing the gall-bladder or draining it always confronts us. In a case in which we have a gall-bladder that is filled with pus and considerable inflammation, it is safer to drain the bladder, and remove it later. In one case, I removed the gall-bladder in the presence of a lot of infection in and around it; and, as a result, I lost my patient. Since then, I have been cautious, and always drain badly infected cases and remove the gall-bladder later. Others might adopt a better plan, but this suits me better than to attempt to remove a gall-bladder that is badly inflamed.

Dr. Burrus: Is there any further discussion? I shall be glad to hear from anyone. I think that the best part of the paper is the discussion of it, and I hope we may get up some real enthusiasm in this meeting, and that everyone may feel free to discuss, at any time, any paper he may hear read.

CHRONIC GASTRIC AND DUODENAL ULCERS

Charles S. Lawrence, M. D., Winston-Salem

When patients suffering with gastric and duodenal ulcer get to the surgeon they, as a rule, have reached the chronic stage. They give a history of gastric disturbance going back over a period of years, and

usually tell a story of having been cured, or relieved of their symptoms, several times during their life of indigestion.

There is no question but what a great many acute ulcers of the stomach and duodenum are cured by the internist. On the other hand a great number of the so-called cures are simply those cases that have a let up in their seasonal exacerbations.

In the diagnosis of gastric and duodenal ulcer we have pinned our faith largely to the history and Rontgenological findings. A careful anamnesis is most important and requires experience and tact on the part of the historian.

There is no pathognomonic sign of ulcer of the stomach or duodenum but the history is rather typical. A patient complaining of indigestion, extending over a period of years with seasonal crisis, usually in the fall or spring, and sometimes both fall and spring, with pain coming on at a definite time after food, relieved by taking food, soda or something that will dilute or neutralize the acid gastric juice, sour stomach, heart burn or water brash, is very suspicious of ulcer. Stomach ulcer pain comes on sooner after taking food than does duodenal pain. As a rule there is more gas in stomach ulcer than duodenal, pain at night at a stated time is more common in duodenal than gastric ulcer (one of my cases was awakened at 11:00 P. M. several nights in succession). Hemorrhage is not common, occuring in about twenty per cent of the cases, Melena is also infrequent, occult blood is of no value and is not looked for in our cases. Patients are usually well nourished because they eat to relieve pain.

The x-ray in the hands of a competent Rontgenologist is invaluable. In our work by my associate Dr. G. C. Cooke we give the patient an ordinary meal the evening before the examination, at 8:00 P. M. he gets fifteen seedless raisins, at 8:00 A. M. the stomach is pumped and a search made for skins of raisins. At the same time he is given a motor meal of three ounces of Barium in about four ounces of cream of wheat. At 2:00 P. M. he is screened and given four ounces of Barium in one quart of butter milk. The general contour of the stomach is noted, the stomach manipulated with the hand, after this a series of plates is made. An ulcer destroys the tissues of the stomach wall forming a cavity, the barium fills this cavity and we get a niche which can be seen with the Rontgenoscope and will show on plates. Irritation of the circular muscular fibers of the stomach is caused by the presence of an ulcer, causing contraction which cuts the opaque meal in two and we get an incisure, also seen at the screen and on the plate. Such phenomena often give the appearance of an hour glass stomach.

Duodenal ulcers cause an irregularity of the duodenal cap, evidenced by defective filling, hypermotility of the stomach and where obstruction exists, a retention after six hours. Chemical analysis has been of very little help to us in diagnosis.

A brief analysis of eighteen cases of chronic gastric and duodenal ulcers operated on at the Lawrence Clinic, (I have included two cases of cancer of the stomach because of the typical history of gastric ulcer going back over a period of years). There were eleven male and seven female, average age forty-one, youngest twenty-nine, oldest sixty. Duodenal ulcer fifteen, gastric three. Occupation: farmers six, females living on farm seven, bookkeepers one, merchants three, physician one. Complications: gall stones three, perforating acute one, chronic one, cancer two.

TREATMENT

1. Posterior gastro-enterostomy appendectomy nine.
2. Posterior gastro-enterostomy three.
3. Closure of acute perforation, plication one.
4. Posterior gastro-enterostomy Cholecystectomy one.
5. Posterior gastro-enterostomy resection of ulcer and Cholecystectomy one.
6. Pyloroplasty appendectomy one.
7. Gastrectomy (Partial) Belroth No. 1 for carcinoma one.
8. Posterior gastro-enterostomy, pylorectomy cholecystotomy one.

It will be noted that posterior gastro-enterostomy was performed on all cases with exception of three, one was a case of acute perforating duodenal ulcer of 48 hours standing, which was rapidly opened, the perforation closed, drainage instituted.

2. A case of duodenal ulcer near the pylorus in which the stomach emptied well and in good time so it was decided to try the method of pyloroplasty. This case has not done so well as the gastro-enterostomized cases have.

3. A case of carcinoma starting on the lesser curvature near the pylorus. The tumor was freely movable, a Belroth operation No. 1 was performed.

RESULTS

There have been no operative deaths in this series, one case (partial gastrectomy) died seven days following operation, of broncho pneumonia. The bowels had moved several times and the patient had not vomited. Autopsy showed a good firm union of anastomosis and no peritonitis. One case of duodenal ulcer in a man 29 has continued

to have trouble in the form of pain, sour stomach and occasional vomiting. I am of the opinion that this case was too acute and should not have been treated surgically. I am, however, not operating on acute or even sub-acute cases where there is good stomach motility and when pain and discomfort can be controlled by medical means.

The one other cancer case included in this report improved after gastro-enterostomy but died within a year. The remaining fifteen cases have had excellent results and I see or hear from all of them frequently.

Posterior gastro-enterostomy up to this day holds the balance of power in the treatment of chronic gastric and duodenal ulcer. Additional surgical procedures frequently have to be applied in order to obtain best results in the case, such as resection of the ulcer, plication, dealing with adhesions, gall bladder and appendix. Such conditions must be left to the surgical judgment of the operator. It would be foolish to lessen the chance of recovery of ones patient 15% to 25% by resecting a densely adherent and bound down duodenal ulcer, when as a rule such cases get along about as well without resection. On the other hand we think it is good surgery to resect the ulcer, especially stomach ulcer, when easy of access and the subject a good risk. One of our most brilliant results was a case of duodenal ulcer in a man 60 years old of 20 years duration, with a retention of ¾ of the meal after 6 hours, a contracted gall bladder containing one large stone where we performed posterior gastro-enterostomy, resected the pylorus and proximal portion of the duodenum, removed the gall stone and drained the gall bladder. It has been proven clinically that pain in gastric and duodenal ulcer is caused by the acid gastric juice coming in contact with the ulcer. The alkaline treatment of ulcer is recognized by the leading Clinicians and patients suffering with this affection soon find that their pain is relieved by taking an alkali, gastro-enterostomy automatically alkalinizes the stomach by the admission of jejunal contents which is alkaline. The gastro-jejunal opening also assists the stomach in discharging its contents, not all the stomach contents pass through the new opening by any means, unless the pylorus is occluded. C. H. Mayo has aptly stated that posterior gastro-enterostomy is a well known agricultural principle applied in surgery. A constantly wet acid soil is tile drained and the surface limed.

I wish to give due credit for the feeble effort made in this paper on this much discussed subject, to the visits made by the writer to the leading clinics of the world and I especially mention the clinics of Drs. John B. Deaver, Dr. J. M. T. Finney and the Mayo Clinic in this country. Moyhneham & Lane in Europe. The Journals, Surgery

Gny. and Obs. A. M. A., published papers of the Mayo Clinic, Annals of Surgery, etc.

DISCUSSION

Dr. A. J. Crowell, Charlotte: Before the discussion of Dr. Lawrence's paper is opened, I will say that I do not know whether the courtesies of the floor have been extended to visiting physicians or not and I move that they be extended to them and request that they participate in the discussions. We have with us great teachers in the person of Dr. McGuire, of Richmond, and Drs. Hunner and Burnham and we want them to understand that they are to continue teaching while in our midst. We are glad to have them.

(The motion was seconded and carried.)

Dr. J. W. Tankersley, Greensboro: There is not much that I can say on the subject of ulcer in the stomach; but I should like to ask Dr. Lawrence what his experience is in diagnosing it by means of the x-ray, operating, and finding no ulcer. I have had that experience several times, and have been put in an embarrassing position by not finding it.

The question of the medical or surgical treatment of these ulcers is one in which the burden of proof rests on each side. The surgeons claim that they cure them. I once heard Dr. Deaver say that he constantly operated on the ulcers that had been cured by medical men. I think Dr. Wylinski said recently that forty per cent of ulcers that had been cured by the medical men in his own clinic came back to him later on. The question is whether we shall operate on these cases or turn them over to the medical men for their so-called cure. I do not know. I have had some cases that were put on typical medical treatment, remained thirty days or thereabouts in the hospital, and went home apparently cured. I have had other cases that were treated by the Sippy method consisting of rest and proper diet, and then went home apparently cured; but I have recently had to operate on one of these cases that had apparently been cured, the patient having had no symptoms for two months. He undoubtedly had had an ulcer diagnosed by x-ray a year ago. He came back to me with a ruptured ulcer of the duodenum.

The question, when we do operate, is whether we shall excise the ulcer or do a gastro-enterostomy. To do the latter without excising the ulcer, I think, is a makeshift; and we shall not do the patients any good by such a procedure. I have had good results in some very few instances by excising the ulcer and not doing a gastro-enteros-

tomy; but the plan of treatment of myself and my associate, Dr. Williams, has been to do a gastro-enterostomy, excise the ulcer and turn it in.

Then, what shall we do? After having done what we could for the patient, we find, several years later, that some other surgeon has operated on an ulcer that was giving trouble to the patient, and that apparently the ulcer was cured. We had a patient operated on two years ago, and the patient had trouble afterwards. From x-ray diagnosis, the gastro-enterostomy was all right; (?) but they went in and relieved the gastro-enterostomy, and the patient is all right today.

I am not capable of passing an opinion on the question. I should like to hear Dr. McGuire or someone who does more than I do tell what the end results are in such cases.

Dr. Stuart McGuire, Richmond, Va.: I think it is a great pity that there should not be a better understanding between the physician and surgeon with reference to the treatment of gastric and duodenal ulcers. The physician and surgeon have each their special field of work and both are more or less dependent one on the other. The surgeon should not question the fact that many cases of ulcer are cured by medical treatment, but remember that he does not see the cases that are cured and that those which come to him are the ones that have not responded to treatment. The physician on the other hand should not censure the surgeon for operating on practically all his cases but remember that patients who consult a surgeon are those who have exhausted medical treatment without avail. With reference to the diagnosis of gastric and duodenal ulcer, I believe in the average case it usually can be made by a carefully taken case history, and the provisional diagnosis can be absolutely confirmed by an x-ray examination. You had better have no x-ray room at all if you do not have a good one. An incompetent pathologist or an incompetent roentgenologist is a very dangerous man. If a reliable x-ray man diagnoses an ulcer and I fail to find it at operation, I always feel it is more likely a mistake on my part than on his.

I think it is unfortunate that gastric and duodenal ulcers are ever discussed in the same paper. They should not be associated theoretically as they have to be treated so differently practically. Gastric ulcers should be operated on as soon as discovered. Duodenal ulcers should not be operated on until medical treatment has been tried and failed. Gastric ulcers tend to undergo malignant degeneration, while duodenal ulcers do not develop into cancer. Why ulcers of the stomach will become malignant and those of the duodenum will not do so

is not definitely known. Perhaps it is because the stomach is acid and the duodenum is alkaline. A gastric ulcer should be excised. If it is small this can be done with the cautery. If large by a resection of the stomach. As a rule I do not think a duodenal ulcer needs to be excised. In my experience they can be cured by a simple posterior gastro-enterostomy.

Dr. C. S. Lawrence, Winston-Salem: In the x-ray diagnosis of ulcer, there are certain facts that you can establish and see, as you can see a sign-board along the road, in the x-ray plates and in front of the screen. If you do not see them, do not imagine you do. If a man has an ulcer of the stomach on the lesser curvature, if you have a "niche" and incisure with the history, you can say that he has a gastric ulcer. If he has irregularity of the duodenal cap, with a six-hour or more retention, of a motor meal, I do not think that there is any doubt that you can say that he has a duodenal ulcer, putting the history with the x-ray findings.

As far as the treatment is concerned, I think we all agree as to the treatment of gastric and duodenal ulcer. Either of these, like a leg ulcer, if you could get to it and strap it, would get well; but the only way to strap a gastric or duodenal ulcer is to operate—do a gastro-enterostomy and excise the ulcer. I do not think that there is any doubt in the minds of the leading men as to the treatment of these ulcers. I think it is foolish to take a man with acute duodenal ulcer and operate on him. If he has good emptying time and is well nourished, and if the pain can be controlled, medical treatment is the thing. There is no question about it. But when he has retention of from six to twelve hours, what good will medical treatment do; I should like to know?

The trouble in treating gastric and duodenal ulcers medicinally lies in controlling the patient. He gets better, feels well, and returns to the same habits as before. He is up at night, and eats and drinks what he pleases; and the first thing you know, the ulcer gets worse. You might compare these ulcers to pelvic inflammatory disease. If you can control the patient long enough, you can control this condition. It is the same with these ulcers. In the early stage, you can cure them, if you can control the patient.

STRICTURE OF THE URETER

Thomas M. Green, M. D., Wilmington

Stricture of the ureter occurs generally at one of three points, (1) just below the renal pelvis, (2) 3 or 4 c. m. below the pelvic brim and (3) in the broad ligament portion. The latter point is by far the most common point of occurrence. Frequently there is a definite stricture at the broad ligament portion and also at the brim of the pelvis. The high situation is extremely rare.

Strictures are either congenital or acquired. The congenital strictures are considered rare by most authorities with the exception of (1) Eisendrath and (2) Bottemley, who believe that they are far more common than one would be led to believe. On the other hand (3) Hunner, (4) Caulk, (5) Furniss, (6) Kelly, (7) Garceau, and (8) Brasch, all consider the acquired type by far the most frequent and regard the fœtal type as a rarity. The fœtal type is supposed to be due to the persistance of fœtal valves or to actual twists in the ureter and are frequently associated with other anomalies of the kidney and ureter, such as failure of the kidney to ascend or to rotate. Both Eisendrath and Bottemley believe that fœtal strictures may exist for a long period of time and not show symptoms until adult life, that they are often multiple and the resultant hydronephrosis far more exaggerated than in the acquired type. (9) Eisendrath reviews some 67 cases which he considered congenital.

The acquired type may be of extrinsic or intrinsic origin. The extrinsic causes are pressure on the ureter from neoplasms, accessory or anomalous vessels of the kidney, traumatism of the periureteral tissue. The intrinsic causes are, tuberculosis, Bilharziosis, calculus, malignancy and pyogenic infection. The effects of neoplasms pressing on the ureter is not of very much interest as it does not occur often. This is probably true of anomalous vessels also. (10) Ekehorn first demonstrated the result of anomalous vessels pressing on the ureter and later (11) W. J. Mayo very elaborately reviewed this subject. They are most frequently anterior to the ureter and when they are they produce compression. When they are posterior they produce a kinking forward of the ureter. Injuries to the periureteral tissue frequently occur during pelvic operations, especially panhysterectomy. Tuberculosis may produce stricture anywhere in the ureter and they are most often multiple. In this instance, however, we are more concerned with the condition of the kidney than with that of the ureter. The strictures following Bilharziosis are said to be also multiple and very pronounced. Dr. Wood and myself are attempting to prove the

existance of this condition in North Carolina now. An impacted renal calculus may produce ulceration which may be followed by stricture. These strictures are invariably low down near the bladder. Primary carcinoma is very rare. Syphilis must always be bourn in mind as a cause of ureteral stricture. Pyogenic infection is by far the most frequent cause of all strictures. (12) Kelly was perhaps the first to direct our attention to pyogenic origin of these strictures, his conception being that the stricture follows pyogenic infection in the ureter. Hunner was the first to point out the roll that focal infection played in their cause and also that the infection is most often a blood stream infection and that the urine infection is secondary to stasis produced by the stricture. The route of the infection is most often by the blood stream, but it may pass upward in the lymphatic channels of the ureteral wall from below and sometimes through lymphatics which anastomose with these of the colon. It is possible for an infection to extend up along the mucous membrane of the ureter, but that is considered very unusual. The pathology of these strictures is similar to that of stricture elsewhere, i. e., connective tissue proliferation and contraction. All coats are equally involved. It may vary from a simple annular narrowing to a marked area of dense infiltration in the ureteral wall. At first infection is deposited in the ureteral wall. The various coats are successively involved until the mucous coat is reached where ulceration soon occurs. The chloride constituents of the urine then set up a marked connective tissue proliferation with resultant contraction. The colon bacillus, staphylococci, streptococci and gonococci are the organisms most frequently found. Pyogenic infection sometimes produces a severe ureteritis, trigonitis or urethritis without stricture and sometimes we find one or all of these conditions associated with stricture and dependant upon a focal infection (13) elsewhere. One frequently can trace attacks of urethritis and trigonitis to an outbreak of tonsilitis or other focal infection, which clear up with amazing quickness after removal of the focal infection. This is quite true with ureteral stricture and ureteritis.

The effects of stricture on the kidney and ureter are most striking and far reaching. Generally the effects on both is a gradual dilatation, but sometimes we see an atrophy of both. (14) Barney explains this with his experiments as follows: It seems that the question of atrophy or dilatation when the ureter is suddenly obstructed depends upon the accessory venous anastomosis through the renal capsule to the spermatic, infra-diaphragmatic, ureteric supra renal, and subcutaneous plexus of the lumbar region together with other veins of

that area. When the obstruction occurs suddenly there is a marked distension of the ureter and renal pelvis with a pronounced increase of intra-renal tension. The parenchyma shows an intense hyperæmia and œdema and since it cannot expand within the inelastic capsule the intra-renal pressure becomes so elevated that the venous capillaries of the parenchyma become obliterated. If the compensatory venous circulation through the capsule is sufficient then we have a balanced circulation and continuance of urinary secretion with a hydronephrosis developing. If, however, this accessory venous circulation is not sustained then the intra-renal pressure becomes so great that it produces not only venous but arterial capillary obstruction and secretion ceases with the resultant atrophy. In the gradual obstruction from stricture we have a continuous dilatation but gradual in character. There is however a marked increase of intra-renal tension and constant hyperæmia creating a larger and heavier kidney. It has long been considered that the hydronephrotic kidney was always the one to select for nephropexy. It would be well here to review the work of Edebohls on suspending kidneys. He found that after slinging the kidney to the lumbar aponurosis by means of stripping off its capsule and using it as a sling that the albumenuria and casts frequently disappear from the urine. This lead to a very extensive capsule stripping of nephritic kidneys with more or less improvement unfortunately of a temporary nature. While the removing of one inelastic capsule allowed the renal parenchyma to expand and relieve it of the devastating affects of increased intra-renal tension brought about by hydronephrosis, it did not prevent a reformation of the capsule which invariably took place. Again (15) McNider has shown so clearly that mercurial poisoning will produce such œdema of the renal epithlium as to create a marked increase in intra-renal tension and ultimately an anuria from obliteration of the capillary circulation of the parenchyma. It is also a recognized treatment for the anuria of mercurial poisoning to strip capsule from the kidney with the hope of permitting the parenchyma to expand and the secretion to be resumed. In my recent observation I am finding a constant improvement in the functional test of hydronephrotic kidneys going hand in hand with the return of the dilated renal pelvis to normal. After dilating ureteral strictures we have also had some very encouraging results in lower blood pressure readings. (16) Geisenger lays great stress upon this question of intra-renal tension and gives it first consideration in the sequele of hydronephrosis following stricture.

Symptoms:—One of the most characteristic symptoms of ureteral stricture is pain. It is due most often to the distension of the ureter

and renal pelvis from obstruction and is therefore in a manner similar to the pain of renal colic, gall stone and appendicitis. It may be acute or dull, constant or intermittant, referred to the pelvis, to the back or along the course of the ureter. It may be referred to the opposite back, to the sacroiliac, epigastric and gall bladder areas and oftimes down the back of the thigh. This accounts for the condition being so frequently confused with appendicitis, gastric disorders, pelvic conditions, sacro-iliac joint diseases and gall stones. Patients frequently complain of having had pain for years. It is often aggravated with each recurring attack of pyelitis or with the menstrual epoch. There is a milder type of pain in some cases, where little or no hydronephrosis exists and is due to stricture with marked ureteritis. Other symptoms of ureteral stricture are gastro-intestinal disorders, especially mucus colitis and conditions dependant upon chemical disturbances of the gastric juice. Less frequently there is mental depression and all sorts of nervous states, until we too frequently relegate these patients to the class of so-called neurasthenics.

The urinary signs are generally intermittant and consists usually of night voiding, day frequency and tenesmus. They generally give a history of having had urinary symptoms existing over a period of years. Frequently they date from childhood. Cultures of the urine are as often negative as positive. I have always found them positive during acute exacerbation. The presence of pus or blood in the urine is uncertain. They are just as often absent as present, except during acute exacerbation. Fever may be present during the pyelitis attacks and generally indicate poor drainage of the renal pelvis. The mere insertion of a permanent catheter for 24 hours is apt to give relief.

Diagnosis:—Patients generally present themselves with a history of abdominal pain referred to one of the previously mentioned areas, with a history of having been operated on without relief. Hunner found that in a series of 50 cases, 34 of them had been operated on and of this 34, seven operations were classified as necessary and 27 of them were unnecessary. One patient 36 years of age had spent the larger portion of the last 18 years in hospitals and had had 8 operations done, 7 of which were abdominal. The urinary symptoms and the urinary findings are very helpful in the diagnosis. Palpation gives us a great deal of help and reveals tender spots, corresponding with the stricture, i. e., low down in the broad ligaments or at a point 1 inch to the outer side of the umbiliacus on a level with the brim of the pelvis. Sometimes the entire ureter is tender where ureteritis is marked and extensive. The kidney is often large and tender and readily palpable and too freely movable. During palpation the pa-

tient frequently complains of the character of pain that they have suffered from so long and pressure on the kidney or ureter frequently gives them a desire to void. Vaginal and rectal examinations also reveal tender spots in the lower ureter. The cystoscope often reveals valuable information. Often we find a marked urethritis and occasionally actual stricture which is always suggestive of a stricture of the ureter above. The vesical trigone is also often the seat of definite inflammation. The ureteral orifice is as often normal as diseased in appearance. The mons ureteri sometimes show a bullous œdema. The ureter may be so distended as to project into the bladder in a teat like formation with the ureteral orifice in its apex. The stricture may be so dense that obstruction to the catheter as it enters the ureter may be so definite that one does not pass it until several attempts have been made. When the catheter is passed a steady stream of urine is very suggestive of hydronephrosis and stricture. The normal rate of urine is drop by drop at the rate of 17 drops a minute. Another very definite diagnostic sign is the extreme pain when the catheter passes through the area of ureteritis or stricture. The patients often exclaiming, "Doctor, you are creating an attack." The free bleeding of the ureter from the mere passage of the catheter is another very suggestive evidence. It also explains no doubt our cases of so-called ideopathic intermittant hæmaturia. Another valuable diagnostic aid is the distension of the renal pelvis and ureter with the fluid and measuring the returned fluid. This should be done cautiously because the fluid may be forced into the parenchyma with more or less severe reaction. It should be discontinued as soon as the patient feels any pain in the back. They oftimes warn you that you are creating the same pain from which they have suffered for years and refer to it by what ever it has been called in the past, whether it be gall bladder pain or appendicitis or what not.

Finally we come to the most definite means of diagnosing a stricture, that is, passing a catheter with a wax bulb. We may have obstruction going in, but there is so much chance of error that we do not consider that an evidence of stricture. However, if on attempting to remove the catheter we get a very definite hang and a grating sensation as we draw the wax bulb through the stricture or have it come through with a jump, we have a very definite evidence of stricture. Finally a pyelo-uretergram serves not only to check up the question of hydronephrosis, but it demonstrates the presence of stricture and at what location. It may also show the presence of stone and help us determine a tubercular kidney from the other type. It is also useful for future comparisons. The passing of a catheter with a wax bulb, should

be done not oftener than once in 8 or 10 days, depending upon the amount of reaction after a treatment. The renal pelvis is irrigated through the catheter before it is removed. I use a 1% nitrate of silver. Very frequently a marked reaction after the gentlest sort of treatment is in itself a diagnostic evidence of ureteritis and stricture. However, there is a certain amount of reaction occurring after each treatment and it is only the exaggerated type that I was referring to above. There are certain precautions about these treatments which should always be observed. Treatments should not be given too frequently. It is well to withdraw the stilette an inch or two so by no possible chance could it be pushed through one of the eyes of the catheter and penetrate the ureteral wall. It is not well to use large wax bulbs, especially at first. Do not dilate strictures beyond 6 m.m. The shoulder of the bulb should be tapering.

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DISCUSSION

Dr. Burrus, Chairman: I will ask Dr. Wood, of Wilmington, to open the discussion.

Dr. Edward Jenner Wood, Wilmington: It seems strange for me to discuss a surgical paper, but my interest in the condition was brought about by the fact that many of these patients were in my hands before going to Dr. Green. It appeared that there was something in the gall-bladder region that we did not find. Many had had

their gall-bladder removed, and some their appendices, yet they still suffered. One with hydronephrosis had been treated several years before for duodenal ulcer. She came to me last October with the story that she had been to another physician who told her that the gall-bladder and the appendix must both be removed. She was then on the way to the hospital and had come to me to see whether she was in shape to undergo the operation. I was impressed with the fact that she did not have a typical picture of either gall-bladder or appendix disease. The findings were negative except for a point of pain on the right of the abdomen, at the level of the unbilicus. It took me some time to convince her that she did not have these conditions. I sent her to Dr. Green and her condition has been relieved. It took all our persuasion to convince her that she could live and retain the appendix and gall-bladder.

This is a common history. The symptoms do not fit in with either gall-bladder or appendix trouble and when Dr. Green examines the patients he finds that we are correct in our diagnosis of kidney involvement. The thing that we have been interested in is why some of these women, who show tremendous evidences of kidney change—albumin, casts and high blood pressure—should be materially improved, the albumin decreasing in amount, the casts decreasing in number, and the blood pressure falling. There will be a persistently lower blood pressure, both systolic and diastolic after such treatment. The work is the most important that I have seen in many years and the zeal with which Dr. Green has carried it out speaks highly for his industry and patience. There is a great field for this line of work in spite of the criticism of many of my surgical friends who say that there is nothing to it, whether there is anything to it or not. If not, it is the finest kind of psychotherapy that I know of and I know that it is not psycho-therapy, however. Many people are being relieved, even after having passed through the hands of some of the best surgeons in the country.

Dr. A. J. Crowell, Charlotte: There is no doubt about the fact that anything that interferes with the elimination of the kidney's secretion will produce a high blood pressure, a toxic condition as a result of nitrogenous retention. We have seen the blood pressure fall wonderfully many times following bladder drainage in old people suffering with hypertrophy of the prostate gland. In fact we have seen marked increase in young people with ureteral obstruction and a rapid decline following removal of obstruction. Dr. Green has shown very conclusively that we do have ureteral stricture but I am also of

the opinion that they are not so frequent as some think. The lumen of the normal ureter varies greatly at different points and we should not lay too much stress upon the "pull."

A small stone impacted in the ureter which does not show in the radiogram is often misleading. We were deceived in a case of this kind not long since. We had some trouble in getting by the obstruction, but finally succeeded and we secured a stone which was lodged at that particular point. We had in this case both conditions. I am sure the presence of the stone was the exciting cause of the stricture. The ureter was pulled considerably to the left and adherred to surrounding tissue as shown by ureterogram. The stone was in the right ureter two inches below the pelvis.

I think the plan of getting ureterograms and pyelograms are very important in all these cases of abdominal pain and especially when it cannot be accounted for otherwise. I think it can easily be misleading since the lumen of the ureter varies normally at different levels. I have not used the bougie so much. It is important to get these cases early in order to prevent nephroptosis, infection, pressure atrophy, etc.

Just to illustrate how rapidly the kidney regains its activity when obstruction is relieved and drainage re-established, I will report a case referred to us only a few days since. It was in a case of ureteral obstruction due to the pressure of a pregnant uterus of five months' duration. She had been referred to us to ascertain whether it was a postcecal appendix or a diseased kidney. We found a badly infected kidney. The phenol-sulphone-phthalein test did not show up on that side in thirty-five minutes. It was a case of hydro-pyonephrosis. The catheter was left in four days, irrigating the kidney pelvis every three hours with normal saline. At this time the phthalein showed up in ten minutes and the output fairly good. I mention this in order to emphasize the fact that if we get drainage, the kidney will come back very rapidly.

I congratulate Dr. Green on his excellent piece of work.

Dr. Burrus: We have with us a very distinguished gentleman from Baltimore; and I will ask Dr. Green to introduce Dr. Guy L. Hunner, to whom we shall be glad to extend the courtesy of the floor.

Dr. Green: It gives me pleasure to introduce Dr. Hunner. It is to him that I owe what I know of this subject, and, with your permission, I shall ask him to close the discussion for me, as he can bring out more points than I could in the time I have.

Dr. J. W. Tankersley, Greensboro: I should like to make answer to and refute the criticism about the surgeons' not acknowledging these things. We do. I think that any surgeon who will not have a kidney examined in these obscure cases is not a surgeon. In the month of March, we had ninety cystoscopic examinations of the kidney; and, following the lines mentioned by Dr. Green, we have found a considerable number of strictures of the ureter.

I do not agree with him that so many of them are due to the tonsils. I think that in some cases they are responsible, but not in all cases. I believe that the responsibility lies between the colon, the ureter and the kidney through the blood. In a large number of cases in which the appendix has been removed and the pain persists, there has been a chronic condition; and the pain did not clear up because they did not go in and treat the kidney. If they had, the symptoms would probably have cleared up.

Recently, a lady came in with a diagnosis of acute appendicitis, and a temperature of 103°. I could not convince myself that she had acute appendicitis, so I cystoscoped the bladder and kidney, and found an intense pyelitis on the right side, with a small degree on the left and a strictured ureter. The woman is now under treatment in the hospital, where she has been only a few days; so we cannot tell the results yet. But I think it is coming to the point, in these obscure conditions of the abdomen, that we must rely on the cystoscope to clear them up; because so many cases of kidney involvement have been overlooked in the past.

Dr. Curtis F. Burnam, Baltimore, Md.: To my mind ureteral stricture frequently causes abdominal pain and discomfort of a very severe type and, in addition to this, is the indirect cause of various physiological variations of functions in the abdominal organs. The condition is common, the less severe cases being undoubtedly more common than the advanced ones. In every abdominal pain condition where there is not a clear cause of the pain evident, it is now incumbent to thoroughly investigate the urinary tract for ureteral stricture. The technical side of the diagnosis and treatment of ureteral stricture is learnable but demands careful and thorough work. Inadequate use of the catheter and wax bulb, and unfamiliarity with the methods of dilatation can do nothing but discredit the method.

Dr. Stuart McGuire, Richmond, Va.: I did not want to be called on to discuss these two papers because I am not yet prepared to agree with the conclusions of the authors. I have the greatest respect and

admiration for Dr. Green and Dr. Hunner, but I think they are over-enthusiastic. I have heard practically the same papers and seen similar pictures at other meetings. Why are all the cases reported by gynecologists and all the patients women? Either men have a strange immunity or are being much neglected. I have a very competent urologist on my staff and he has been trying for six months to find strictures of the ureters which gave symptoms, but has failed to do so. I am going to ask my friend, Dr. Hunner, to let him spend a few days at his clinic in Baltimore and learn how to do the work. Dr. Green and Dr. Hunner report cases coming to them who have had unnecessary and unsuccessful operations of various kinds done by other surgeons and whom they have cured by dilating strictures of the ureters. There is another side to the story. I have had patients come to me who have had their ureters dilated without benefit and I had to treat them for the infections and traumatisms of instrumentation before I could operate on them for their real trouble. Perhaps we are all going to extremes. The chances are Dr. Hunner and Dr. Green are over-treating some patients and those who don't agree with them are failing to properly treat others. I must confess the papers I have just heard have made an impression on me. I will go home and try with an open mind to investigate the subject anew.

Dr. A. J. Crowell, Charlotte: Following surgical operations, we frequently find that the ureter has been pulled out of its normal course and acts as an obstruction to the outflow of urine and often mistaken for stricture.

Dr. Guy L. Hunner, Baltimore, Md.: Mr. Chairman, Ladies and Gentlemen: It has been a source of great satisfaction to me to see that North Carolina still stays in the front ranks of progress. As usual, I see that Virginia is coming along. She will get there.

Dr. Green, when he met me, the other morning, told me that he was ashamed that he had invited me to discuss his paper, instead of to present one. I told him that it would be of more value to have a little backing from him, one of your own men, than for me to get up and make any sort of claim; because you have all set me down as an enthusiast, if not absolutely *non compos mentis*.

I have seen with satisfaction the difficulties that some of you have had to contend with in controverting the evidence of such a list of slides as Dr. Green has shown. It has been another great source of satisfaction to hear from Dr. Wood, one of your general practitioners, or diagnosticians. Some men have got the idea that ureteral stricture

is a sort of indefinite, hazy thing, and not a real pathological entity; and that it is only an expert with the ureteral catheter who may be able to make a diagnosis. If this meeting has done nothing else than give Dr. Green's viewpoint, I think that you have got the most important viewpoint in the whole business; that is, that ureteral stricture is a disease that is coming to your office every day, and that there is no one that cannot, with a little pains, arrive at a diagnosis before the ureteral catheter is used. It is important that the general practitioner should bear this lesion in mind as a disease entity, the same as gallstones, appendicitis, oophoritis, etc., when making up his mind as to what causes abdominal or pelvic pain. The history has so many variations in character, as you have seen from the list of operations in Dr. Green's cases, and yet has something characteristic about it. The patient first says, "I have abdominal pain," and on being stripped for examination and asked to locate the pain the hands go in just above Poupart's ligament. You will note that the hand does not go over the McBurney's point region, as it would in appendicitis, but goes deep down back of Poupart's. Then, if you palpate, you find these tender areas—tender kidney, tender ureter at the pelvic brim region, and particularly in the broad ligament region. We have not a clearer picture in medicine than this and most cases should be diagnosed before the urologist sees them.

Then, as to Dr. McGuire's point about his urologist not finding the stricture as often as some enthusiasts would lead him to believe, and not finding strictures as often in men as in women: Dr. McGuire is perfectly right in saying that if due to diseased tonsils and bad teeth, they should be found as often in men as in women. I do not know a thing about stricture in men except from the work of such men as Folsom of Dallas and Goldstein of the Hebrew Hospital in Baltimore, both of them are finding many strictures in men. The urologists have a right to follow the lead of the splendid Brady Institute in Baltimore and I cannot blame them for waiting to hear what the Brady says. As Dr. Green has intimated, many are still trying to diagnose stricture by passing an ordinary catheter. It cannot be done. You will occasionally bump into strictures that you cannot get an ordinary catheter through. Any one would be willing to diagnose most of such obsructions as stricture. But you will go through the greater number of strictures with even the No. 8 and No. 9 catheter without the least idea of there being an obstruction; and that is what Dr. McGuire's urologist is doing. He is trying to diagnose it without the wax bulb. I should like to know whether he diagnoses stricture in the urethra with a plain sound or uses a *bougie à boule*. To diagnose those in

the urethra, he would use a bulb, and why should he refuse to put the bulb on in looking for a stricture in the ureter?

I have made the broad assertion, which many of you have heard, that ureteral stricture is one of the commonest lesions in the abdominal or pelvic cavity. I am not yet ready to say "the commonest." This work of Dr. Green's bears that out. He is in rather a small town, and has had about seventy-five cases altogether. He went into the work only about two years ago last Christmas. If a man in a town like Wilmington can see seventy-five cases in two years, in the midst of a busy practice, it certainly is a lesion that physicians ought to bear in mind. I have said, also, that ureteral stricture causes more useless abdominal and pelvic operations than does any other lesion and I am about getting to the point of saying "more than all others put together." In spite of the seemingly wild statements that I have made, I have not advanced any that I have had to retract. I have made such statements as that ureteral stricture is the most important lesion in the urinary tract, because it causes more pathology than any other lesion; and that is gradually being borne out by the work of the men following the suggestions that I have made, and using a wax bulb.

Over fifty per cent of hydronephrosis cases are due to stricture of the ureter; almost all of the recurrent pyelitis cases—probably ninety per cent at least are due to stricture; of the cases of pyelitis of pregnancy and puerperium, almost all are due to stricture. About pyelitis in children, I cannot tell; because I do not see many children. But I have seen children from four to eleven years old with stricture.

An interesting group of cases belonging to the class of high blood pressure and chronic interstitial nephritis, are women who come with a history of several miscarriages at four to six months. Practically all of those that I have seen in the past three years have bilateral stricture of the ureter and probably the chronic interstitial type of kidney. They are the ones that give the picture, not of beginning hydronephrosis, but of the smaller kidney. More stricture patients by far have a lessened capacity of the kidney than have a hydronephrosis. If you are trying with Dr. Crowell's advice to diagnose stricture on the strength of an x-ray picture, you will miss half of the cases. You must depend on the wax bulb. The x-ray properly interpreted will convince the other fellow, but you will find more stricture cases that do not have the big kidney pelvis than cases that do have it.

Stone in the ureter is almost always formed in a strictured area. We used to think that the inflammation around it was due to the

irritation of the stone; but it is the other way around; the stone forms in the inflamed area. Some stones break loose and go downward and form a bladder stone; others get loose and travel upward and become cases of stone in the kidney. I am finding an interesting fact in recurring kidney stone cases. After having had an operation for stone on one side, the patients come back with stone in the same kidney or on the other side; or they have stone in both kidneys at first. Practically all such cases seen in the past two years have bilateral stricture. Apparently the great factor in the reformation of the stone is stasis due to the stricture.

The idiopathic hematuria cases, in which we have been unable to find any causative factor, constitute another interesting group of cases. There is a string of causes that have been suggested for this condition, but we are now putting one more cause on that string. We have had about a dozen such cases in the past three years every one of which had stricture of the ureter. I did nothing for some of these cases but pass the wax bulb until I cleared up the hematuria, so as to show that we can cure the hematuria by that simple means.

I am not interested particularly in upholding any idea that I have brought out in the past, but I am interested in seeing some of the younger men who have pep and want to do the work getting into this game. I am a gynecologist, and I am supposed to be operating on women, rather than doing urology; but the importance of this stricture work has justified the sacrifice of the better cultivated field of gynecology. There are innumerable scientific problems that I have not had time to work out, because I have been so busy in relieving these poor women that I have not been able to go into the laboratory work. I have thrown out some suggestions in previous publications as to the many important problems to be studied. I am anxious for you to get to work on these problems, and if my theories on stricture are incorrect you should make this known. Get busy on this problem, which, if substantially correct as presented, will save men and women thousands of absolutely useless, and more than useless, operations every year.

SURGICAL TREATMENT OF TIC DOULOUREUX

C. C. Coleman, M. D., Richmond, Va.

For the purpose of a better classification of pain in the distribution of the fifth nerve it has seemed advisable to adopt terms which indicate the severity and persistence of the pain rather than adhere to the familiar term "tic douloureux" which was primarily applied to the more serious types of neuralgia in the face. The designation of tic douloureux for the severe trigeminal pain of paroxysmal type arose at a time when the question of the nerve involved was a matter of grave doubt, and it is probable, as the term indicates, that the origin of such pains was thought by many to be in the seventh nerve rather than in the fifth. However inaccurate the term "tic douloureux" is, it has been sanctioned by long usage, and scientific substitutes, while desirable in order that some of the confusion may be removed, will admittedly find general acceptance very slowly among the laity and profession. "Major trigeminal neuralgia" (Cushing) and "surgical neuralgia" (Frazier) have both been proposed as a substitute for "tic douloureux," while minor types of neuralgia in the distribution of the trigeminal nerve includes pain of varied origin and extent usually dependent upon a demonstrable pathology. It is true that some of the forms of minor neuralgia will later become major in type. The causes of facial pain are numerous and a number of different types have been described:

First: Major neuralgia, true tic douloureux.
Second: Minor neuralgia.
Third: Hunt's neuralgia.
Fourth: Sluder's neuralgia.
Fifth: Central pain, neurosis.
Sixth: Painful spasm of the seventh nerve.
Seventh: Neuralgia due to tumors.

The major type of trigeminal neuralgia when fully developed and after it has existed for years can usually be recognized without difficulty. It first appears in the large majority of cases either in the second or third division of the nerve and the paroxysms of pain remain true to type in that while the overflow of pain may involve all three branches it practically always begins in certain definite zones, in the cutaneous distribution of the second and third branches. The paroxysms are rather constantly initiated by some such act as chewing, talking, swallowing, or by the application of water to the face. So striking is the similarity of the paroxysms to each other, and so con-

stantly does a definite action precipitate a paroxysm in a given case that this type of neuralgia has been called "epileptiform neuralgia" which is another name to impress the explosive character of the paroxysms of tic douloureux. The major type of neuralgia is not generally found in people younger than 40 years, is practically always unilateral, and as a rule the majority of cases come for treatment after the age of 50 is reached. The pain is agonizing, and of a boring, burning, tearing type, often with radiations to the palate and tongue. The paroxysms in the beginning of the disease may have a sudden onset with an equally sudden disappearance, and months may intervene before the next paroxysm occurs. The intervals become progressively shorter until finally the patient is reduced to a pitiable state of apprehension and suffering.

Whatever speculations may be indulged in as to the role of focal infections in the production of major trigeminal neuralgia, careful examination of the nerve tissue removed at operation has shown no constant pathological findings. We must conclude therefore that the etiology of major trigeminal neuralgia, or tic douloureux, is unknown. While the recognition of the well developed cases of major neuralgia is not difficult, a most careful analysis is frequently necessary to determine the kind of facial pain and especially is this true in the early stages of the disease. Sinus and dental infections, impacted teeth, focal infections in any part of the body, and constitutional disease can all produce a facial pain which is not true tic douloureux. Obviously the treatment of neuralgia due to these conditions would differ very essentially from the treatment of major neuralgia.

In the past, patients have rarely consented to surgical treatment for tic douloureux until after years of suffering for which the removal of teeth, tonsils, and the drainage of sinuses have been done. These procedures uniformly failed to bring relief. If the real nature of the disease could be recognized early the patient could not only be operated upon before the general condition had been impaired by age, but years of suffering and much useless surgery might be prevented. On the other hand a diagnosis of major neuralgia in its early stages is a difficult one and often requires some form of surgical procedure to certify the true type of the neuralgia.

It is not the purpose of this paper to discuss the differential diagnosis of the various kinds of pain in the face. It must be borne in mind that there are at least six well known types of facial pain and these can be correctly differentiated only by careful study. When clinical investigation alone fails to make the differentiation, the employment of deep alcohol injections into the trunk of the affected

nerve at its exit from the skull is a procedure of the greatest value for diagnostic purposes. We believe that in a persistent paroxysmal neuralgia of the second and third branches, in which no focal or constitutional cause for the pain can be found, an alcoholic injection should always be given preliminary to the radical operation. Should the disease appear primarily in the first division a peripheral neurectomy should be done, inasmuch as this branch is unsuited to the alcoholic injection. A well placed deep injection of alcohol into the second and third branches gives a longer relief from pain due to tic douloureux than the peripheral avulsion of the nerve at its exit from the bone. With the exception of the first division we have abandoned the peripheral operation upon the fifth nerve. The use of screws in the foramena after the tearing away of the nerve gives no additional protection from a recurrence of the neuralgia, and a number of times in our clinic we have removed these screws and relieved the pain by a deep injection of 95% alcohol or the radical operation. Besides giving relief from the pain of major neuralgia for an average of about 8½ months, the alcoholic injection is a diagnostic procedure of great value in cases which have had the pain for only a short time, or in cases of doubtful character. If after the injection, which produces numbness in the distribution of the branch injected the patient still complains of the same pain, obviously we are not dealing with a type of neuralgia which can be benefited by any surgical procedure upon the fifth nerve. Relief from the alcohol injection is not permanent but it lasts in some cases for several years. In patients unfit for any form of surgical operation because of advanced age, above 80, or serious cardio-renal-vascular complications alcohol must be our chief reliance. Accurate injection of alcohol into the nerves where they leave the cranium, while free from danger if the anatomy is correctly visualized, is not always a simple procedure, and at times it may be extremely difficult. One can usually tell from the resistance offered to the injection and the characteristic pain whether or not the nerve trunk is actually penetrated. Fortunately the intraneural injection of alcohol is not essential to a more or less complete relief from pain although the best result will naturally follow the injection of the nerve itself. We have not used a general anesthetic in giving these injections but have relied upon novocain or procain which is first injected into the nerve if possible and this is followed by one or two cubic centimeters of pure ethyl alcohol. We have seen no bad results from the injection of alcohol except in one case where the second branch was injected along with the spheno palatine ganglion. This patient had a temporary paralysis of the sixth nerve which cleared up in 10 days and

a superficial ulceration of the hard palate which was healed in two weeks. The neuralgic pain was entirely relieved. We have seen a number of patients in whom alcohol had been injected in most unusual locations without the production of a regional anesthesia and therefore with no relief of pain. It seems highly necessary that those who are interested in the treatment of fifth nerve neuralgias should be thoroughly familiar with the technic of the deep injection of alcohol of the second and third branches in order that the proper treatment may be selected for all cases. We have had no experience with injection of the ganglion itself, and from the published reports this procedure is more hazardous than the radical operation upon the ganglion. The large majority of patients with major trigeminal neuralgia should be subjected to surgical treatment which permanently relieves the pain. The surgery of gasserian ganglion is an interesting development. The early surgical attempts to abolish the agonizing pain which the victims of tic douloureux suffer are abundant proof of the justification of any operation, however mutilating, which might be required to give these patients relief. Doyen and Rose many years ago undertook to extirpate the ganglion by an operation which removed the zygoma, coronoid process of the lower jaw and a portion of the base of the skull. This bloody operation accomplished some cures but the mortality was such as to deter all except those who faced death with some indifference or as a prospect of final relief. Sir Victor Horsley attempted an intradural operation and divided the central root of the nerve after it emerged from the pons. This was a difficult and fatal procedure. The next important surgical advance was the method of Krause who approached the ganglion through the temporal fossa. This technic was not perfected by its author, but was modified by Cushing and Frazier and is in general use today with certain additional modifications.

It is of some interest to note the attitude of the medical profession toward operation upon the ganglion. J. Wm. White in 1901 expressed the hope that the mortality of 22% which resulted from the Krause operation would be reduced. As the result of much anatomical study of the ganglion and its environmental structures the mortality of the operation has progressively diminished until at the present time, in the hands of those who are familiar with modern neurosurgical technic the mortality is less than 1½. With the reduction in mortality the complications of the operation have correspondingly decreased so that apart from an occasional paralysis of the 7th nerve the operation for tic douloureux in proper hands is nearly 100% efficient. In spite of the satisfactory results of operation for one of the most painful affec-

tions known and one that has no possibilities of medical cure it is not unusual to be consulted by patients who have been told for many years of the horrible mutilation and uncommon danger of operations upon the ganglion. It is generally the case that patients who come for operation have been advised to do so by a patient who has been cured by the operation, and it may be said here that there is no patient more grateful than one who has had a successful division of the central root of the 5th nerve for major trigeminal neuralgia. It is undoubtedly true that the operation, in the hands of one not familiar with the technic of operations upon the nervous system is a bloody and hazardous procedure. Patients with this disease are usually old people in whom some degree of vascular degeneration is generally found. It is surprising, however, how rapidly such patients may recover from the operation and this is true of old patients even with high blood pressure. The case of an old lady 66 years of age with a systolic blood pressure of 220 before the radical operation is recalled. Before leaving the hospital her blood pressure had reached 190 and six months later it was 160. It is not unreasonable to believe that the constant suffering and apprehension were factors in the elevation of the blood pressure of this patient. These cases should be carefully studied by the internist whose investigations should include the study of renal functions, blood urea, and other phases of modern blood chemistry. We have not been inclined, however, to advise against operation unless there is definite evidence of disease which would make any type of operation unsafe. It does not seem that operations upon the ganglion should have a mortality higher than 1%, and this mortality rate is supported by the statistics of at least two clinics with a large series where the mortality has been estimated at .6 of 1%. While these operations may be long and tedious, if excessive loss of blood is prevented and the anesthetic carefully administered the patients recover from the operation as rapidly as from any other kind of surgical operation. It is not an uncommon thing for these patients in the 6th and 7th decade of life to sit up in bed the day following operation and leave the hospital within a week.

The type of operation which we have followed is that proposed by Spiller and carried out by Frazier in 1901. Instead of an attempt to remove the ganglion as was formerly done, the central root is either sectioned proximal to the ganglion or avulsed from the pons. This operation has been termed by Van Gehuchten "the physiologic extirpation of the ganglion" in that it transects the pathway of painful stimuli from the ganglion and its peripheral branches to the centers of sensory perception. The location of the disease in trigeminal

neuralgia is now placed by all in the ganglion itself and not in its peripheral branches, and any method of treatment for its permanent relief must interrupt in a lasting manner the connections between brain and ganglion or else destroy the ganglion itself.

The indications for the operation upon the ganglion may be briefly stated: Patients who have had one or more alcoholic injections, even though the pain is confined to one branch, should be given the radical operation. Failure to relieve the pain satisfactorily by injection may in known cases of major neuralgia require the radical operation. The radical operation should be recommended when all branches are involved, but a preliminary injection of alcohol into the second and third divisions should be given in these cases unless the diagnosis is certain.

While the technical difficulties and dangers of the operation formerly dominated the attitude of the surgeon towards these patients, now that the operation is one of the safest of all so-called major operations, the surgeon's attention is directed to the question of better diagnosis of facial pain. At the present time the failure of the radical operations is not one arising from the mortality but result from the application of the radical operation to facial pain not due to true tic douloureux. The technical difficulties of the operation upon the ganglion have been greatly reduced by the adoption of methods which avoid hemorrhage. There is a certain amount of unavoidable hemorrhage arising from anomalous small veins of the dura but hemorrhage from the middle meningeal artery which was formerly a source of dangerous bleeding is now easily controlled by plugging the foramen spinosum with cotton. Inasmuch as the chief blood supply of the ganglion itself comes from below, the operation of Spiller and Frazier which divides the central root but does not disturb the ganglion is attended by much less loss of blood. In some cases we have found it advantageous to plug temporarily the foramen ovale in order to compress the small artery which sometimes runs backward along the posterior root. In 1919 we proposed a method of conserving the motor root by means of electric stimulation. While the unilateral paralysis of the muscles of mastication is not a serious matter yet this paralysis is accompanied by considerable atrophy of the temporal region which impairs the cosmetic result. Saving the motor root is, therefore, a matter of considerable importance, and with a well illuminated dry field this root can be separated from the larger sensory root. Moreover in a very small number of cases the patient may require an operation upon the opposite side. If the motor root of one side has previously been divided it would be absolutely essential to save this root

upon the opposite side. Dr. Frazier has recently informed me in a personal conversation that by using the method advocated by the writer he has succeeded in saving the motor root in 80% of his cases.

Ocular complications have been very rare in cases which have been operated upon by me after the method of Spiller and Frazier. There has been no corneal ulceration following the operation. Patients frequently complain for a short time of visual disturbance and deafness on the operated side which can probably be attributed to the confusion of sensory loss with special sense perception. Accurate tests show no impairment of vision or hearing. In one case reoperation was necessary within 24 hours because of the formation of an extra dural clot. This bleeding was traced to the temporal muscle. The patient developed a transient hemoplegia with paralysis of the third, sixth, seventh, and twelfth nerves. The third nerve paralysis persisted for six months while the paralysis of the sixth, seventh and twelfth recovered in about two months. One patient developed a mild wound infection which caused a slight degree of contraction of the temporal muscle which limits the movement of the lower jaw, but causes no practical disability. Two patients had mild attacks of herpes in the second and third division following the operation, due to the manipulation of the ganglion. We have recently used the straight incision similar to that advocated by McEvoy rather than the butterfly incision of Frazier. We believe the straight incision can be made in less time, gives a better exposure, and is less likely to be followed by contraction of the temporal muscle. The visible scar of either incision is inconspicuous. Rubber tissue drainage for twenty-four hours has been routinely used but we have not been convinced of the necessity of drainage in the average case. Fine silk sutures and ligatures are used and the wound is carefully closed. No form of protection is used for the eye, nor is the eye irrigated. The anesthetist and the nurses in charge of the patient are carefully instructed as to the dangers of irritation of the eye. Protecting goggles are worn for six months when the patient is exposed to dust.

RADIUM THERAPY AS AN ADJUNCT TO SURGERY IN INOPERABLE MALIGNANCY

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It is the intention of the writers to limit the scope of this paper to those cases of inoperable malignancy involving the uterus, to report of their experiences in several cases of this type, and to raise the point at issue whether or not these cases should be operated upon at a later date, if all of the gross signs of the carcinoma have been cleared up.

Within the last two years, we have had in our experience fifteen such cases in which radium therapy was used with such encouraging clinical results that we have long since ceased to regard these patients as doomed to an untimely end with intense suffering. By no means do we claim that all of these cases can be cured entirely with radium therapy, but the process of the disease is checked, the clinical signs and symptoms, both local and general, are abated in the majority of cases, and vaginal examination fails to reveal further manifestations of the former malignant condition.

The usual histories obtained in these cases may be briefly summarized as follows, vis.,

Hemorrhage:—This is usually the first sign noticed, and it occurs in various phases. In women of middle life, the bleeding may first manifest itself after coitus. Bleeding at the menopause should not be taken lightly, and, especially, if it comes on after the menopause, when a careful local examination should be made. The bleeding at first is slight and may be only enough to tinge the watery discharge which is likewise present. These hemorrhages gradually increase in frequency and severity.

Vaginal discharge:—Accompanying the hemorrhage, there is usually a thin, watery discharge, which is persistent. This continues to become more profuse, gradually becoming of a thin, muco-purulent nature, and of a very offensive odor.

Pain:—Unfortunately, pain is not an early symptom in carcinoma of the uterus. After the disease is far advanced, it may be present, but the most common complaint is a feeling of weight and uneasiness in the lower part of the abdomen and back.

The purpose of this paper is not to discuss the diagnosis of carcinoma of the uterus, but the reason for giving the composite signs and symptoms is in explanation of how easy it is for these conditions to

progress to a stage where they are inoperable, and also to show later on how one of the beneficient results of the radium is to check these annoying conditions.

The success of the radium treatment of malignant neoplasms depends largely upon having absolute control of the case and giving massive doses of irradiation as often as the clinical conditions warrant. It is our custom to insert the radium within the birth canal in direct contact with the diseased areas, paying particular attention that the cervix of the uterus will receive thorough exposure, and leaving it in place for a primary dosage of four hundred to six hundred milligram-hours. The radium is carefully screened and the rays filtered through the containing glass capsule, an aluminum or brass capsule, and one or more sheets of lead-foil of one millimeter thickness each. The whole radium body, with the above screens and filtering substances, is wrapped in rubber tissue and further filtered this way. The amount of radium used is from thirty-five to sixty milligrams.

After the first treatment of four hundred to six hundred milligram-hours, the patient is instructed to return for the second treatment in ten days or two weeks. Subsequent irradiations are given at two weeks intervals for several weeks, then at three weeks intervals, and, finally, at four weeks intervals, over a period of several months, or so long as the conditions indicate. During this period of radium treatment, the patient's general bodily health is carefully looked after. Tonics of iron and arsenic are prescribed, together with a nutritious diet. In connection with the irradiation at the site of the carcinoma, it is well to mention that a thorough and systematic exposure of the body of the patient to the x-rays is made.

We shall consider the results obtained within the first two months of treatment first, that is, after four radium exposures have been made. The hemorrhage in practically all cases ceases or is checked considerably by this time. Naturally, there will follow a corresponding upbuilding of general vitality and body weight. We have had several cases which were bed-ridden for weeks before they started treatment; after being under radium treatment for two months, they were able to be up and about and attending to light household duties. The vaginal discharge, which has been profuse, muco-purulent in character, and of a very offensive odor, becomes somewhat lessened after the second treatment and is usually stopped entirely with the fourth. If no other benefit were derived from the radium treatment of inoperable carcinoma of the uterus than this one alone, the efforts could be regarded as rewarded, because the majority of these patients have been living in an atmosphere rendered so foul by the vaginal

discharge that they were almost unbearable to themselves and other members of their household. The pain and feeling of weight and discomfort in the lower part of the pelvis and back are soon alleviated. The appetite returns and with it increased body weight and vigor. The blood picture, which was that of a pronounced secondary anæmia, rapidly improves, keeping pace with the general constitutional upbuilding.

From this early improvement in the first two months of treatment, there is a gradual and continuous return of the patient to her former good health and activity. The gross changes at the site of the carcinoma are most interesting to watch. Large, ulcerated areas along the vaginal walls and extending up into the fornices heal with a minimum of cicatricial tissue formation. Nodular and cauliflower-like growths on the cervix disappear and the healing process takes place so smoothly that often it is hard to discern where the former growth was. In many cases all former gross evidences of the carcinoma are so completely removed that vaginal examination fails to show where it was. All cases are kept in touch with and instructed to report for examination every three months after they are discharged from treatment, or earlier if they have any symptoms resembling the original condition.

The following three case reports are taken as typical of the fifteen cases in our series. They comprise practically all of the features and results in the cases treated.

Case 1.—Mrs. H. P. W. Came under observation October 12, 1919. History of menorrhagia, metrorrhagia, offensive vaginal discharge, and loss of appetite. She had lost thirty pounds in weight, and had been confined to her bed for eight weeks previous to her admission to the hospital. Was brought in on a cot. She had suffered several severe hemorrhages, each one more profuse than the preceding one. Examination showed the vagina to be filled with a hard, friable, cauliflower-like growth larger than a man's fist. This mass could be traced up to the cervix, that is, towards the dome of the vagina. The right lateral fornix was indurated with an extension of the growth. The first treatment consisted of six hundred milligram-hours of irradiation. Two days later a second treatment of six hundred milligram-hours was given, and the patient was sent home. Two weeks later this same patient rode to the hospital in an automobile and walked into the building. She reported that the hemorrhages had practically ceased and that she was feeling much better. Examination showed that the mass in the vagina was much smaller, and the contour of the cervix could be made out without any difficulty. It felt like a hypertrophic elongation of the cervix with erosion of the lips. After two months of treatment with radium, this patient felt so much better that it was with difficulty that we persuaded her that she must continue treatment. She was rapidly gaining back her strength and weight and was attending to all her household duties. During a period of six months she was given about 5,000 milligram-hours of irradiation. After this time she was discharged with instructions to

report for examination every few months. All former manifestations of the carcinoma have disappeared and there is no recurrence after one year.

Case 2.—Mrs. H. N. Came under observation December 9, 1919. Age 39. She gave a history of having had a pan-hysterectomy performed eight months previously for carcinoma of the cervix. She complained of loss of weight, strength, and appetite, vaginal hemorrhages of increasing frequency and severity, profuse vaginal discharge of an offensive odor, and distress in the lower part of the abdomen and back. When a vaginal examination was made, the dome of the vagina and the lateral walls were found to be infiltrated with a hard, carcinomatous growth. The initial treatment consisted of five hundred and fifty milligram-hours of radium exposure. The discomfort was relieved after the first treatment. After three irradiations, the hemorrhages and discharge had been checked, and she was greatly improved in general bodily health. In all she received about 4,500 milligram-hours of radium treatment. The last examination showed no evidence of the malignancy. The vaginal mucosa was restored to very nearly its normal elasticity and pliability, with very little cicatrization. Nine months after the last treatment she was in good health with no return of the carcinoma.

Case 3.—Mrs. J. C. Age 65. Came under observation in March, 1920. She gave the usual history of loss of weight, vaginal hemorrhages, offensive discharge, and pain in the lower part of the pelvis and back. She stated that urination and defecation were interfered with. The hemorrhages were so severe at times that she would become almost exsanguinated. Vaginal examination revealed extensive erosion and nodular involvement of the cervix, infiltration into the lateral fornices, dome of the vagina, broad ligaments, base of the urinary bladder, and cul-de-sac of Douglas. The uterus was enlarged, firmly fixed, and immovable. The first treatment consisted in dilatation of the cervix as much as the friable tissues would permit and insertion within the cervical canal of the radium body for six hundred milligram-hours. From the start this case showed encouraging improvement, but we could hardly hope to get complete results. After 2,000 milligram-hours of irradiation, the hemorrhages, pain, and distress at urination and defecation had disappeared, though there was still evidence of the presence of the carcinoma to be made out upon vaginal examination. The cervix by this time had been reduced to such a size and of such consistency that complete dilatation and insertion of the radium within the body of the uterus could be accomplished, which we did on two occasions. Although we carried out the routine raying of the entire body in this case, evidently it did not accomplish the desired results, for metastasis to the liver took place. At present, after nearly a year of treatment in which this patient has received over 5,000 milligram-hours of irradiation, this case has proved refractory and is in a condition where radium therapy is of no avail. We do not feel that all of our efforts have been for naught, for we have surely prolonged the life of this individual by several months and she has been relieved of all of her previous suffering. Even though she is now in the throes of a rapidly developing fatal cachexia, she is comfortable and does not have to be given opiates. This case is cited to show that radium should be used in all cases, even though the chances are very much against one for obtaining results.

From an experience in the treatment of inoperable carcinoma of the uterus as outlined in this paper, one may appreciate why we are so enthusiastic over the results obtained with radium therapy. In many instances all clinical manifestations of the disease have been removed entirely and remained so, that we are almost tempted to call the results cures. The question in our minds is whether we should insist upon performing a Wertheim hysterectomy upon these cases after all the local signs have been cleared up and the patient has been restored to a state of health which would make her a good operative risk, or we should call the case a clinical cure and run the chance of a recurrence. Case reports gathered from the literature seem to indicate that the recurrences which occur after radium therapy has apparently succeeded in inoperable cases are refractory to irradiation again.

We may summarize by saying that radium therapy is indicated in all cases of carcinoma of the uterus. It should be used pre-operatively and post-operatively in those types where it is probable that the process is amenable to operation. Surgery has proved its worth in the treatment of carcinoma of the uterus, and we do not think that radium should replace it until more clinical work has been reported in which radium alone was used. In the inoperable cases, radium is of untold value to check the hemorrhages and offensive discharge, to prolong life and relieve suffering, to enable the case to become a fair risk for radical surgical procedure, and, we even venture to say, to produce clinical cures. It is too early to say what the outcome of these cases will be three or five years from now, but surely if the distressing symptoms are cleared up and the patient is enabled to enjoy life for several years longer than she would have without the treatment, then we are more than justified in advocating radium as the therapeutic agent par excellence in the treatment of inoperable carcinoma of the uterus.

DISCUSSION

Dr. Burrus: Gentlemen, in connection with this paper, under the title of the "Treatment of Cancer with Radium," we have another paper on our program. This paper is by one from whom we are all anxious to hear, and I should like to entertain a motion at this place that Dr. Curtis F. Burnam, of Baltimore, Md., be asked to present his paper now, so that it may be discussed in connection with this paper that has just been read. (Such a motion was accordingly made, seconded and carried.)

Dr. Burrus: I will ask Dr. Highsmith to introduce Dr. Burnam.

Dr. J. F. Highsmith, Fayetteville: I think that, for want of time, we had better waive an introduction. We do not however need any introduction of Dr. Burnam. We all know him. He is connected with the greatest radium plant in the country, and has done more work in that line than all of us put together. Dr. Burnam it affords us great pleasure to hear from you on this most important subject.

THE TREATMENT OF CANCER WITH RADIUM

Curtis F. Burnam, M. D., Baltimore, Md.

Mr. President, Ladies and Gentlemen:

It is an honor and a pleasure to meet you members of the North Carolina Medical Association. Many well known faces of old friends contribute to the feeling that I am here, not as an invited guest, but as one of the household.

I am not presumptious enough to feel that I know the exact value of radium in cancer, and even if I had this knowledge, to demonstrate its truth to you this evening is impossible, for it would involve a detailed consideration of the pathology, diagnosis and surgical-medical treatment of malignant new growths in every part of the body, and would furthermore require an extensive exposition of the physical properties of radium, the construction of apparatuses and the method of aplying such apparatuses in actual treatment. I take it, therefore, that in assigning to me this broad subject you desire, as it were, a bird's eye view, a brief assessment, a summing-up of the present status of radium as applied to cancer, and perhaps a short speculative flight into what the future may offer as to increased facilities and better use of radiation producing agents.

Cancer in popular parlance is synonymous with malignant new growth, and for good reason is associated with an idea of painful and rapid dissolution of its victims; in the strictly medical use cancer is applied to tumors of epithelial origin with certain characteristic microscopical appearances and with the tendency to invade surrounding tissues and to metastasize through normal tissues to distant parts of the body. In using the term "Cancer" I am following the general or popular usage and am bringing into consideration, not only epithelial tumors, but malignant tumors of every kind, and in the discussion will refer to carcinomas, sarcomas and the sub-groups of these tumors as occasion demands.

CAUSE

The etiology of cancer is obscure. There is probably no outside agent responsible for it—it seems to be a disturbance of the orderly balance which exists between tissues and cells and which determines normal growth. Cancer is neither infectious nor contagious. It is transplantable, and this fact weighs against partial surgical removal and has raised the question as to the propriety of taking out parts of tumors for diagnosis.

To appreciate the very important contributory causal relationship of chronic irritation or trauma to cancer, one has but to recall the smoker's lip, the leucoplacic tongue, the ulcered stomach, the keratotic skin, the mastitic breast and the chronically inflamed uterine cervical tears.

Heredity, as has been clearly shown in animals, and as is fairly evident in human beings, is an important contributory cause. It is probably the tendency to certain inflammatory degenerations and not to cancer itself that is inherited. The best illustration of this tendency is the thin, fair, dry skin, always a family characteristic, which at a certain age, if the subject is much in the sunshine, means keratosis and later epithelioma.

Food and habits seem to exercise but minor importance as compared to their influence in the infectious diseases.

PREVENTION

Prophylaxis has a very important place in the fight which must be waged against cancer. It is by public education and propaganda, such as has been so successful against tuberculosis, that precancerous lesions can in many cases be removed and the patient freed from the irritative causes of the precancerous and cancerous lesions.

OCCURRENCE AND DIAGNOSIS

No period of life is totally spared by cancer—it numbers its victims from babyhood to extreme old age. It proportionally increases with the years and this is particularly true of carcinomas. There is no tissue that may not be the starting-point of its own cancer type and nearly every type is found in every part of the body; however, the expert regional diagnostician is able with a primary tumor in a certain locality in most cases to correctly guess its type. The x-ray and clinical laboratories have greatly increased our facilities for diagnosis in bone, head, chest and abdominal new growths. Whenever cancer is suspected, every resource should be employed to ascertain its limits

and this means most thorough general, physical and laboratory examinations. All of us have seen tumors removed from the neck without the knowledge that they were secondary to mouth or nasopharyngeal growths. I have seen an abdominal exploration for a large tumor where a primary small growth in the testicle had escaped attention.

IMPORTANCE OF THE MICROSCOPE

It is perhaps not out of place here and now to emphasize the indispensible assistance furnished the clinician in his diagnosis, in his prognosis and in his choice of treatment by tissue pathology. No patient is fairly treated who has not had (where it can be employed) this diagnostic method as a preliminary to any treatment and it is his or her due after a surgical removal of a growth, not only that a microscopic diagnosis be made, but also that the tissue and slides made from it be permanently preserved. It is my opinion that in every section of the country the medical profession should move to secure adequately equipped laboratories and that sufficient financial and professional inducements should be offered to secure and hold as directors the best kind of men. The name, the address, the clinical diagnosis, the character of the operation should be sent in with every bit of tissue. It is in this way that knowledge will develop and the best help come out of the laboratory. There are some tumors which, while microscopically benign, are characterized as malignant both by invasion of surrounding tissues and metastasis and, on the other hand, we find microscopically malignant tumors which neither metastasize or invade. It is evident that both the gross pathology of the clinic and the microscopic pathology of the laboratory must be given due weight in reaching the truth as to malignancy.

In my opinion there is no objection to the removal of tissue from open surfaces or to the removal of separate, involved glands or nodules, but it is objectionable to cut through normal tissues directly into a tumor mass, unless it is done with a cautery and the diagnosis be made by immediate frozen section as a preliminary to complete removal.

LIFE HISTORY

Why do certain tumors, like round cell periosteal sarcomas, metastasize almost at their onset? Why do some sarcomas, of which the mixed tumor of the kidney commonest in childhood is an excellent example, invade fiercely locally and yet practically never metastasize? Why do certain tumors select bone as a favorite secondary location? Why do cancers spread much more rapidly at times than at others?

What increases the malignancy of a given cancer? These are or would seem to be most important questions, but none of them can as yet be answered. We believe that the body has a protective mechanism in the tissues in contact with a new growth—witness the fibrous tissue reaction about a scirrhous breast cancer nodule. There is some reason for believing that there are general protective substances in the blood and other fluids of the body, but no one knows the mechanism, if there is such.

Cancer once started, unless it is eradicated, almost surely leads to death—sometimes an intercurrent infection or an accident may come to take the victim first. There are spontaneous cures. I know one woman who was sent home to die after removal of an ovarian carcinoma but no removal of secondary peritoneal deposits, and yet she is alive and seemingly well many years later. A few years ago a patient I know of died of a small brain metastasis from a primary small breast scirrhous carcinoma and the autopsy showed nothing but fibrous tissue in the breast and regional lymphatic glands. Such cases are so rare as to have no practical bearing on the general question of the treatment of cancer. Rest, nourishing food, fresh air, specific medicaments, so important in the gravest of the infections, seem to have little or no influence in cancer. No serum or vaccine has been able to succeed in any considerable proportion of cases and their value in any case is open to doubt.

TREATMENT

Surgery and radiation are both capable of curing certain cancers—they are both valuable palliative measures in others. In some instances surgical removal is definitely preferable or possibly the only method and in some exactly the reverse is true. In some instances the combination of the two agents is far better than either alone.

In general, radium radiation is more or less of a surgical procedure and not a general curative agent. In a few of the extremely radiosensible sarcomas, notably lympho-sarcoma, this is not the case. One can hopefully treat the entire body. We have under observation several patients who have been well a number of years although apparently riddled with disease.

The surgical removal of cancer is predicated on the assumption that it is not a constitutional but a local disease at its onset. Experience has borne out this belief in a measure, nevertheless, it is a misconception to think of cancer as beginning only in a single cell. Skin cancers are nearly always multiple. Breast cancers almost invariably start from several distinct foci and are often bilateral—the

same assertion is equally true of ovarian carcinomas. The hope of saving all cancer patients by getting at them early is illusion, although if the early treatment can be instituted, many now lost could be saved. There are those who profess to believe that surgical procedure has reached its limits in cancer therapy. I do not share this opinion, but believe there must be a continuous development for a long time to come. It is certain that the technical development of radio-therapy is still in its early stages and that much more can be confidently expected of it in the future than it has yet yielded. It has, however, just as surgery, already reached certain seemingly impassable limits.

Just a word about the physical characteristics of radium, the methods of using it, its effects on tissues in general and cancer tissue in particular, and its dangers, and I will take up some of the particular cancers, beginning with the head and ending with the extremities. Finally, if you are not too tired, a few lantern slides showing cases and tissues before and after treatment will be shown.

PHYSICAL CONSIDERATIONS

Radium, a metal, forms stable salts with the principal acids. It owes its value to the emission of invisible rays which effect marked changes in some inorganic, as well as organic, substances and have a tremendous effect on living tissues. These rays arise from the atomic disintegration of the element and are of three kinds—alpha, beta and gamma. Gamma rays are ether vibrations and except that they are much shorter, are similar to x-rays and to ordinary light waves.

When radium is used on the surface of the body or in a body cavity to effect anything beyond a few millimeters thickness, the gamma rays alone are used. This is accomplished by surrounding the radium by a metal container. None of the beta rays, 100 times as active from the same preparation as the gamma rays, penetrate the cover.

When intratumor radiation is applied, similar containers may be used and introduced into the tumor, or if radium emanation is employed, tiny glass tubes one mm. across and from 3 to 5 mms. long can by means of hollow needles be pushed out and deposited permanently in the tissues and both gamma and beta radiation utilized. The most effectual method is to implant with a given sized tube each cu. centimeter of tissue. Whatever method is used, care should be taken to so distribute the radium that the entire cancer can or does receive adequate radiation. This is difficult because of two physical factors—first, the absorption of the rays by the tissue passed through and second, the so-called inverse square law, which results in the intensity of the radiation varying inversely with the square of the distance

from the source of radiation, e. g., at 2 units distance from the source not one-half but one-fourth of the radiation is obtained as at one unit distance.

The rays emanating from a radium salt contained in a glass tube are derived from a gas produced spontaneously by radium undercell conditions and called radium emanation. It is possible, if the radium salt is put into solution, to separate this emanation from the radium and put it into tubes. The use of emanation has great advantages in permitting of thorough sterilizing of apparatus, in making it to suit the individual case, in permitting of the easy use of beta rays and in the avoidance of the use of extremely expensive material which may be lost by breakage, accident or theft. Its disadvantages are the technical difficulties and time and expense connected with its separation and measurement.

There is one other substance securable in this country which does not produce an emanation that is utilizable but which as a salt is exactly like radium in giving off rays—it is mesothorium. It is considerably less expensive but has the disadvantage of complete deterioration in twenty years against radium's average life of twenty-five hundred years.

When used externally, radium in a metal box or tube should be applied at such a distance from the body that the tumor in the depths can be radiated and the skin not over-radiated and burned. The conditions are exactly analogous to those that obtain with x-ray tube treatment. In this connection I should like to go on record to the effect that radium gamma rays are very much more efficient than x-rays in treating cancer, provided they can be secured in sufficient quantity. The possible explanation is the shortness and greater penetration of the gamma rays. At the present time very important work is in progress to produce x-rays of shorter wave length and greater penetration, hoping thereby to more nearly reproduce radium effects.

BIOLOGICAL EFFECTS OF RADIATION

How are cancers effected by radiation? The principal effect is a direct one on the cancer cell nucleus and to a lesser extent on the cell cytoplasm. Normal tissues are as a rule much more resistant than the cancers derived from them. The selective action of radium consists in giving a dose sufficient to destroy the tumor germinative capacity but not enough to destroy this property of the normal tissues. In some tumors this is impossible. There are great differences in the susceptibility of different types of new growth to radiation, but there are also great variations of the same histological type in different

individuals. One reads of a cancer death dose in the German literature, but this is a very illogical statement, it seems to me, for it varies with every tumor and with every patient.

In addition to the effects on the tumor, there is some reason to believe that both the local and general protective mechanisms of the body are favorably influenced by radiation. Normal connective tissue is stimulated to grow, locally replacing tumor tissue, and from a general radiation, irrespective of the influence on the tumor, there is almost invariably a general improvement in health and well being.

INJURY FROM RADIATION

Burns which develop as a result of over-radiation of normal tissues heal promptly when they are of the first degree—when of the second or third degree, healing is very prolonged and they are invariably very painful. When they are so situated that surgical removal is possible, this should be carried out. Where complete extirpation is impossible, great relief of pain may follow curetting with thorough cleaning out of sloughs and pale granulation tissues.

In general and repeated radiations such as are carried out for extensive abdominal malignancy or generalized sarcomatosis, the blood must be watched most carefully—there is first a fall in the white blood count to as low as 1000 cells per cu. mm. accompanied by a disappearance of the mononuclear cells and the blood platelets. If radiation is persisted in, the hæmoglobin and the red blood cells begin to fall and hemorrhages take place from the mucous membranes and purpuric spots appear under the skin; frequently conditions in the mouth resembling scurvy appear. Not only should radiation cease at the onset of such symptoms, but the patient should be put to bed, food should be forced and in some cases transfusions carried out.

Radium preparations should be handled with long forceps to avoid finger burns. When nurses and operators are over exposed for long periods there results a leucoplacia with relative increase in mononuclear cells accompanied by some anemia. In women there may develop amenorrhea or frequent and excessive periods. Nurses should not be kept on radium duty over too long periods. We change our nurses, i.e., those who make up the packages and apply the radium, every month and do not allow them to come back on duty for a year.

BRAIN TUMORS

The malignant brain tumors are either gliomas or endotheliomas. Both are to some extent radio-sensible but the latter much more pronouncedly. They are very rarely surgically curable but surgical ex-

posure is usually necessary for diagnosis and frequently to save sight and life, threatened by intra-cranial pressure.

In localized, benign tumors, implantation of radium is possible. In practically all cases we have employed heavy distance treatments. It is feasible to use as many as twenty portals on the head, each two inches square, and to give two or three gramme hours of radiation through each portal. The prompt recession of "hernia cerebri" through a decompression opening is very frequent. In repeated cases the power to walk, where it has been lost, and the return of vision, have been observed. I have been very fortunate in seeing tissue in almost every case treated. In several cases the time which has elapsed since treatment justifies the belief that permanent cures have been obtained. Normal brain tissue, the integument and the cranium have in no instance been injured.

Tumors of the "hypophysis," of which we have had a number, are very favorably influenced. The method of application should be either through the head at a distance or the applicator can be introduced through the nose into the sphenoid sinus directly under the sella turcica (the latter is the easier method). I have not been fortunate enough to treat a case of acromegaly in an early stage. Others, however, have reported cures and I am quite sure that the disease can not only be arrested, but the physical abnormalities, if taken early, will disappear.

CANCERS OF THE EYE

The tissues of the eye are fortunately fairly tolerant to radiation. I have never observed injuries from the heavy radiations of the head which have been given for intra-cranial new growths. However, in one of my early cases of extensive epithelioma of the eyelid, where adequate protection to the eyeball was not given and where a very large dose was applied, there resulted one year later cataract and glaucoma. The commonest malignant growth about the eye is the epithelioma of the eyelid. These can be treated exactly like skin epitheliomas, which will be described later. When extensive and fixed to the periosteum, they are very difficult to heal and show a marked tendency to invade both the orbit and the eye itself. These advanced cases should be treated with the idea of curing and not with too much effort to save the eye. It is often better to surgically remove the eye as a preliminary. A combination of destructive radiation and surgery is often essential. In the smaller growths the eye should be protected by lead screens and a dose given which will cure in a single application at one-quarter inch distance. This can be usually secured by

giving one gram, twenty minutes, to each square centimeter of surface. After considerable reaction healing is usually complete in six weeks. In the larger growths heavy distance radiation, implantation, special applicators may all be necessary. The thin basal celled epithelioma, which occurs on the cornea, itself, can be radiated away without injury to sight.

Up to the present time I have only radiated two or three intra-ocular tumors as an alternative to removal of the eye. One of these, a melano-sarcoma, was not benefitted. Another seemed to improve, but growing fearful of waiting the eye was removed and the tumor proved to be a granuloma, probably tubercular. In recurrent melano-sarcoma after the removal of the eye there has been observed disappearance of the tumor locally, freedom from pain over a number of months. This has been secured only by direct implantation into the tumor. These patients do not remain well but die from brain or general metastasis after a more or less long period of relief. The gliomata of the retina have a better prognosis, can be made to disappear through distance radiation but have the same unfortunate tendency to metastasize. A number of non-malignant tumor and other conditions of the eye are very amenable to radium-therapy. The available means of treating eye cancer have been greatly advanced and should be further advanced by the use of radium.

CANCERS OF THE PAROTID GLAND

The malignant tumors of the salivary glands can be separated with difficulty from the non-malignant growths. The clinical tendency is to call them all mixed-cell sarcomas. As a matter of fact, almost every type of sarcoma and carcinoma occur in this location, particularly in the parotid. In old men by far the commonest tumor is a metastatic squamous cell carcinoma; the original lesion has often disappeared. The mixed cell sarcoma is decidedly resistent, especially to external radiation, and some of them to heavy burying treatment. In such cases surgical removal, taking with it the facial paralysis, is thoroughly adivsable as the results are fairly good. Round cell sarcoma and spindle cell sarcoma almost invariably disappear under adequate radiation. The adeno-carcinomas, very unfavorable surgically, may heal completely through radium. The squamous cell cancers already referred to are best treated by implantation, external radiation has very little effect upon them.

CANCERS OF THE NASOPHARYNX

Up to the present time the surgical achievement in these tumors has been almost nil. On the other hand, some brilliant permanent

results have followed radiation.* The tumors principally concerned are sarcomas of the round cell and angio types, also some cases of a peculiar sarcoma resembling granuloma tissue. These tumors, which are usually very malignant, spreading through the sinuses of the head and metastasizing to the glands of the neck and from thence to all parts of the body, are curable and have been apparently permanently cured in a number of cases by heavy distance radiation, taking in the head, neck and chest. In all such cases, however, direct application of radium to the tumors and implantation are of great assistance and may be absolutely necessary to clear away all parts of the growth. In this region, as in all others, it must be confessed that one meets in some cases tumors of the favorable histological types described and yet there is not favorable response to radiation. The carcinomas of the nasopharynx in our opinion practically never disappear from heavy distance radiation; they may decrease in size and the pain which they cause may disappear. Where these growths are small and can be covered by suitable apparatus or infiltrated with emanation points, there is definite possibility of cure; this, however, it is evident, excludes the extensive growths. Far more, however, can be hoped for than by any known surgical method.

CANCERS OF THE TONSIL

Sarcomas of the tonsil, which are usually of the round cell type, respond very well to radiation and a number of permanent cures are on record, and we have personally a number of cases cured which have not been reported. Heavy distance radiation is usually completely effectual. The epitheliomas of the tonsil of the basal cell variety are curable in the same way, but offer a decidedly worse prognosis. Squamous cell cancer of the tonsil is also curable but only by implantation. Local application in the mouth is difficult and is likely to induce painful burns.

CANCERS OF THE LARYNX

We have one case of extensive basal cell epithelioma of the larynx well for more than six years from a heavy single external radiation. The common tumor in this locality is the squamous cell cancer. This cancer, when confined to a single vocal cord, is curable by laryngeal fissure and removal of the cord. Radiation may be a helpful prophylactic. I have been observing one case of this kind for several years who has remained well. Complete extirpation of the larynx does also yield cures in some of the more advanced cases. We have some very hopeful results by implantation directly into the walls of the larynx

by means of a special injector. Usually a preliminary tracheotomy is necessary where this treatment is carried out, not enough data is available to give any permanent results.

CANCERS OF THE TONGUE

Sarcoma of the tongue is rare, almost invariably the lesion met is a squamous cell pearl forming carcinoma, which metastasizes to the root of the tongue and to the Spheno-maxillary fossa, and later to the glands of the neck. Sometimes the primary growth is very small and the metastasis very extensive; often the exact reverse situation to this is the case. The gland metastases, as well as the primary growth, in this type are comparatively little influenced by distance radiation, no matter how much is given, and sometimes they are definitely made worse. We have a few cases where local lesions of the tongue have healed completely and remaind so a number of years following application of radium to the surface of the tongue. These cases were early cancers. I have seen exactly similar cures by surgical extirpation with the cautery; I have, however, one extensive case about a year well and treated by radium in this way. The treatments are unfortunately followed by a great deal of pain and discomfort due to surface burns. Implantation of radium emanation carrying points offers a very suggestive and hopeful method. Each cubic centimeter of tongue should receive two millimeters of emanation, not only the growth but a wide area around it should be thus implanted; the glands can be treated in the same way. Very little pain follows this procedure, often severe pain already present disappears and there is in many cases a complete disappearance of the tumor. Every part of the tongue is amenable to this form of treatment. Our cases treated in this way have not gone long enough to speak of cures, but we are very hopeful that such may prove to be the case.

CANCER OF THE BUCCAL MUCOUS MEMBRANE AND LIP

Nearly all these growths are squamous cell epitheliomas. Gland metastases and extensive local involvement of bone are but poorly affected by distance radiation. Local radiation by means of appropriate applicators, giving one gram twenty minutes to each square centimeter of surface is very effectual. Applicators made out of dental compound and with the tubes set in it or recast in lead are extremely convenient for this purpose. In the local lesions, except the most extensive, and here the burying technique may be necessary, there is very satisfactory result. The cosmetic effects on lips are better and the chances of cure better than by the wedge shaped excisions. A

great deal can be secured by implantation in fixed masses to the bone and in inoperable fixed masses in the glands; however, a thorough radical surgical removal of the regional lymphatic glands in the early cases is decidedly a better procedure and I advocate it strongly. We have many of these lip cancers which have been cured over a number of years.

CANCERS OF THE NECK

The malignant growths which are found apparently primary in the neck are very numerous. Many of them are primary growths in the neck, not a few are secondary tumors from some small focus elsewhere in the body, which may unless most careful general examination is made, escape attention. Tuberculosis, syphilis, Hodgkins disease, leukemia, chronic inflammatory adenitis may all readily be confused with the true new growths. There are also a number of primary non-malignant new growths in the neck. In neck tumors wherever possible it is most important to secure tissues for microscopical diagnosis. This can usually be done through the removal of some single gland. I will not consider here the treatment of the inflammatory conditions, of the secondary malignant tumors or of the primary benign new growths.

The commonest primary new growths starting in the neck are the round cell sarcomas of the lymph-glands. These tumors almost invariably disappear completely from heavy external radiation; they are usually made rapidly worse by surgical intervention. In addition to the neck it is necessary to treat the head, axillæ and mediastinum. Sometimes they have metastasized to the abdomen and the entire body must be treated. We have some of these cases well for more than six years and many of them well for shorter periods of time.

Carcinomas of the branchial cleft are quite common and while they invariably subside under distance radiation, rarely completely disappear. They are very poor objects of surgical removal and, except in a few early cases, there have been no permanent cures from surgery. Usually attempts at it tremendously increased the disease and its discomforts. As yet we have no cases which have been adequately implanted and I do not know what the results will be by this method. The malignant tumors of the carotid body are very similar in their response to therapy to the gill-cleft carcinomas and will not be considered further.

Endothelioma primary in the lymph-glands of the neck is a disputed pathological entity; clinically it is not uncommon. It is not a surgical disease; it is not as radio-sensible as the round cell sarcoma, but frequently disappears completely from the neck under thorough distance

radiation. Still more is accomplishable by a combination of burying points and external radiation. When the disease has involved the mediastinum or become general it is no longer curable, or at least we have not been able to cure it; however, one can definitely prolong life and ameliorate discomforts in many of these cases.

Finally, the malignant tumors of the thyroid gland must be considered. The carcinomas vary immensely in their histological appearances, sometimes one finds very malignant metastasizing tumors which have the appearance of normal thyroid tissue; and again well localized tumors have all the histological characteristics of extreme malignancy. There are a great variety of sarcomas of the thyroid gland but they are more uncommon than the cancers. In well circumscribed local growths surgical removal should be carried out and this should be followed by radiation of the thyroid region and the upper chest and mediastinum. In fixed growths surgery should be limited to the removal of small bits of tissue for diagnosis and reliance should be put in radium. The results will naturally vary with the type of tumor found, but it is possible to hold in abeyance and make disappear very large malignant growths of the thyroid gland in some cases. The results that we have obtained have been mostly with the heavy distance treatment; we are beginning to combine this with implantations.

CANCERS OF THE BREAST

The results of treating cancer of the breast have been very gratifying. The possibility of curing cases beyond operation exists, and a comprehensive combination of operation and radiation should greatly increase the percentage of permanent cures in the so-called operable cases. There is a fairly wide difference in the radio-sensibility of scirrhous and medullary cancers in favor of the latter, which is on the whole the most radio-sensible carcinoma in the body. In order to properly limit the usages of radium in treating breast cancer it is necessary to refer briefly to my position in regard to operative treatment. I believe in the radical removal of breast, pectoral muscles, axillary glands and fat. I do not believe in the removal of the supraclavicular glands or in attempting any removal where they are involved, where there is extensive skin metastasis, where there is definite involvement of bone or where there is lung and mediastinal involvement. I am in doubt as to the propriety of the removal surgically of recurrent nodules after operation in the skin and on the chest wall; if such a procedure is carried out it should always be combined with radiation, and I am inclined to believe that radiation alone, or certainly radiation primarily, is a sounder procedure. What can one

hope to accomplish by radiation and what are its limits? A serious attempt to cure generalized and universal breast cancer seems unwarranted; nevertheless, in some instances the removal of local foci causing pain and distress and the general improvement in health following radiation has seemingly justified the attempt. By distance radiation it has been possible in almost every case to clear up skin metastasis, nodules covering the whole half of the chest have been removed in this way. It seems to me that this fact will modify our conceptions as to skin removals at primary operations and that it will be possible to cover the chest walls with a thick skin and underlying fat without sacrificing the chance of cure. Under distance radiation in a considerable number of cases there has been disappearance of supra-clavicular and axillary glands. We know now that this can be much more rapidly and efficiently done by appropriate implantation methods. I have one case of a general carcinoma, originally from the breast, where headaches and choked discs have cleared up from radiation of the head. We have a number of patients where there has been both clinical and x-ray healing of breast cancer in bone. In several instances metastases to the vertebral column in addition to pain has resulted in paraplegia. In such cases it is possible, as we have shown, to stop pain, to cause the local healing in the bone and by rest and extension in bed to have return the power of locomotion so that the patient, as far as the local trouble is concerned, is cured. We have also some cases of extensive inoperable breast cancer and local breast cancer recurrence which have apparently healed locally and have stayed healed over a considerable period of time. I feel that patients with extensive pulmonary involvement and with involvement of the liver and who are already cachectic can rarely be materially helped and probably ought to be excluded from treatment.

CANCERS OF THE MEDIASTINUM

The commonest malignant primary tumor of the mediastinum is lymphosarcoma. Secondary tumors are commoner than primary. Primary new growths of the lung and pleura are relatively uncommon. A surprising proportion of the primary new growths of the mediastinum and of the secondary radio-sensible new growths can be most favorably influenced. I know of nothing in clinical medicine more extraordinary than the seeming return to life of a patient with one of these huge mediastinal growths treated by radiation, gasping for breath, cyanotic, apparently dying; twenty-four hours may see a complete relief of symptoms. Furthermore the cure may be complete and permanent.

ABDOMINAL CANCERS

Practically every known form of carcinoma and sarcoma is found in the abdomen. I can only briefly refer to a few of the more important locations and commonest tumors.

Cancer of the stomach has been a disappointment, it is possible that this may be due to the fact that nearly all the patients I have seen have been far advanced and mostly suffering with obstruction. It is highly desirable to radiate some of these cases after operation, and when the patient is still in good condition. There are several reported cases of cancer of the stomach cured through radiation in the literature, but I have not had a case. Undoubtedly the round cell sarcoma, which is not unknown in the stomach, would yield to radiation. I would suggest that there be a combination of surgery and radiation along such lines as would seem to promise an improvement in the present methods of treating this particularly dangerous new growth.

CANCER OF THE INTESTINES

Carcinoma of the intestines should always be primarily attacked by the surgical route and radiation employed as an additional method of treatment and preserved for the inoperable cases. Marked improvement is common, complete disappearance from radiation is rare, but we have observed it in some cases that seem indisputable.

CANCER OF THE RECTUM

Cancer of the rectum is favorably influenced by heavy distance radiation and may actually disappear; however, this is not the common result. It is extremely difficult to decide in operable growths whether it is justifiable or better to use radium or to operate. A growth situated on one side of the rectal wall and not too high up can be quite effectually treated by the proper kind of applicator. We are inclined to feel too that the burying technique offers even better results. We have several inoperable cancers of the rectum which have been apparently permanently cured by radium alone; however, it must not be forgotten that radical removal has been demonstrated to be a real effectual cure in a good many cases, and perhaps it will prove a more effectual method than that offered by radium.

CANCER OF THE KIDNEY

Hypernephroma is very little radio-sensitive. We have never seen a tumor of this character disappear from radium alone. I have had practically no experience with cancer of the kidney. Sarcoma of the

kidney, common in childhood, is quite radio-sensible and we have seen a number of these huge tumors disappear completely. In several cases this disappearance has been maintained for a number of months. It is probable that these tumors are round cell sarcomas. There are some huge renal tumors in children that are not affected by radiation. Except in small children I feel that surgery should have the field primarily in malignant tumors of the kidney and that it is justifiable to use radium or x-radiation, if radium is not available, in the recurrent and inoperable growths.

CANCER OF THE BLADDER

Heavy trans-abdominal radiations distinctly help bladder cancer sufferers; it checks hemorrhage, it relieves pain and frequency and it improves the general condition. In two inoperable cases, one a histological carcinoma and the other an unclassified growth, there has been disappearance of the growth and relief of all symptoms for more than four years. We have some definitely healed histologically demonstrated cancers of the bladder as a result of intra-vesical application of radium through a cystoscope; we have found, however, that this method is difficult of application, requires repeated exposures and is less effecacious than the burying of emanation points. This burying can be carried out in the smaller cases in the female through the Kelly cystoscope and in males through the Greenburg cystoscope. Where the disease is more advanced the burying is best carried out through a supra-pubic incision. I feel that if a supra-pubic incision is made and the growth is clearly operable, it should be removed operatively and then given post-operative radiation.

GYNECOLOGICAL CANCERS

Carcinoma of the vulva responds very badly to surface treatment with radium but very well indeed to the implantation method. The regional lymph-glands are definitely better treated when it is possible to do so by a block surgical removal.

Carcinoma of the vagina can be treated with very good hope of cure by either surface application with radium or by careful implantation. Surgery has very little place in this locality with this disease.

Cancer of the cervix has perhaps more than any other cancer been the site of endeavors to treat with radium. There are three distinct histological types, the basal cell, the squamous cell and the adenocarcinoma. They are radio-sensible in the order given. Whether in early cancer of the cervix radium alone or radical operation can cure a higher percentage of patients is an open question. Probably the

safest method of procedure is a combination of the two, using radium as a preliminary and following in a few days with the operation. In border-line operable cancers of the cervix and those that are inoperable there is no question that radium is a great palliative boon and that in a considerable proportion of these cases an absolute cure is obtainable. The basal cell epitheliomas can be definitely influenced to disappear by trans-abdominal radiation. In radiating both the cervix and the vagina great care must be taken to carefully distribute the radio-active substance and, so far as possible, to avoid burn. We attempt to cure these patients in a single dose.

Cancer of the body of the uterus is best treated by surgical removal, wherever this can be done. It is radio-sensible but accurate application of the radium is very difficult and, furthermore, the results of operative removal are excellent.

Carcinoma of the ovary is not radio-sensible in a pronounced degree, and wherever it is suspected, whatever is done with radium, operation should be carried out. Marked disappearance of tumor masses, improvement in general health and disappearance of ascites sometimes follow radiation in the inoperable cases. In two young girls tumors which are apparently carcinomas, but which may possibly be unusual sarcomas, of which we have microscopical slides, completely disappeared as the result of trans-abdominal radiations and the patients have remained well over several years.

CANCERS OF THE SKIN

It would seem that malignant new growths of the skin would be the most favorable of all objects of radiation, and this is perhaps true of the smaller cancers. Most of these growths are epitheliomas, sarcomas are relatively infrequent. When the squamous cell pearl forming epithelioma has reached enormous size and when it has become attached to and involves bone, its cure by radiation is extremely doubtful and difficult. They all improve markedly but finally begin to give pain and show a remarkable tendency to live on; in many cases their lethal dose of radiation seems fully as great as the surrounding normal tissues. In growths of this character wherever it is feasible and possible a destructive single dose radiation should be carried out, and this should be followed by a cautery surgical removal. Of course in many localities this is not possible, in such cases judiciously applied radiation can hold the disease in check—often almost cured—over long periods of time. On the other hand, small growths still limited to the skin or the soft parts underneath the skin are almost invariably curable by a single dose of gamma radiation given at a distance of

one-quarter of an inch and with an intensity of 1 gram 20 minutes to the square centimeter.

CANCER IN ANDROLOGY

Cancer of the testicle is represented by a variety of malignant new growths. In the rare syncytioma, if one can judge by a single case, there is very little effect from radiation; on the other hand, some of the most astonishing results have been obtained in other types, and we have a number of patients who have remained well after the disappearance of huge abdominal metastases due to primary testicular sarcoma. These tumors are otherwise absolutely hopeless. As a plan of treatment I advise removal of the primary tumor, radiation of the primary region and of all the tributary glands as well as the mediastinum.

Carcinoma of the prostate is somewhat similar in its radio-sensibility to breast cancer. The hard scirrhous forms are less radio sensible than the medullary growths. By means of heavy distance treatment, by intra-urethral treatment and by implantation it is possible to relieve pain, to relieve retention and to improve the patient's general condition. Bone metastases can be very greatly relieved and in a way exactly analogous to the breast cancer metastasis to bone. I am not prepared to say whether in early operable cancer of the prostate it is advisable to employ radium radiation instead of operation, but it would seem justifiable in certain cases where operation is contraindicated for general reasons to give it a trial.

CANCER OF BONES

The bone cancers are sarcomas. The medullary giant cell tumor does not metastasize, is readily curable by operative exposure, curettage and the use of radium; it is not easily curable by distance radiation. The periosteal bone forming sarcomas are extremely resistent to radiation; these tumors nearly always metastasize early; they often necessitate operation on account of pain and their size. Unless actually located in and around the joint, such operations as humerous and hip joint amputations do not seem justifiable. Dr. James Ewing, of New York, was the first to describe a non-bone-forming periosteal sarcoma which has some of the microscopic characteristics of an angiosarcoma. It apparently occurs in bone alone, it rapidly destroys bone and it is very radio-sensible and apparently does not show a marked tendency to metastasis. Dr. Ewing in discovering this growth, in determining its microscopical architecture and its radio-sensibility, has contributed an enormous addition to our knowledge of bone tumor

pathology and to bone tumor treatment. At the present time a most extensive study of these bone sarcomas is being made by very competent people, and I feel that all of us should keep careful records of cases coming under our observation. I have only seen one of the Ewing type of tumor; this was in a young boy and involved the left scapula. He is still under observation but the tumor has completely disappeared from distance radiation.

We have pretty well gone over the entire body, but in a fragmentary way. I have used the personal pronoun repeatedly, some times *I* and again *We*. The truth is that the conclusions presented have been arrived at through the work of all the members of the staff of the Howard A. Kelly Hospital and in many cases through assistance of members of the Johns Hopkins Hospital staff, in particular, as well as other medical men.

I will now show a few slides and I have also brought with me a few instruments and apparatuses which we have spoken of in the course of the paper.

DISCUSSION

Dr. Burrus: I will ask Dr. R. L. Payne, of Norfolk, Va., to open the discussion on these papers.

Dr. Robert L. Payne, Norfolk, Va.: Mr. Chairman and Members of the Surgical Section: It is certainly a treat and a pleasure to listen to these papers. While Dr. Burnam's talk was quite comprehensive, there is quite a great deal to be learned from the first paper read.

Someone said to me today, "Doctor, I hear that you are using a lot of radium." "No," I replied, "but I am using radium a lot." The first paper gave you some good results, as far as the time goes, with apparently a very little bit of radium. For about three years, I have been operating with practically 150 milligrams of radium; and it is about all I feel that I need, except in very bad cases, which I take pleasure in referring to Dr. Burnam, who knows more about it than I do.

With small doses, the danger in using radium in the uterus is that of stimulating the growth. It is interesting to hear of the giving of 450 milligram-hours of radium in a case of inoperable tumor of the uterus, with good results. I have not used that amount, because I was afraid to do so. I think that the sooner men report their results, the sooner we shall know what we can depend on. The reports from the use of large doses of radium are misleading, because we are led to believe that we cannot attain these results without large doses. I

think that the time has come when every good surgical clinic must use radium. None of them can afford to be without it as a pre-operative and post-operative measure, especially; and I believe that we smaller fry ought to be prepared to buy 150 milligrams of radium and use it, because there are so many who demand the treatment and are not able to go to clinics where there is an abundance of radium. They cannot afford it; and it is a great pity that all cannot have the benefits of radium, if small doses will give good results.

There is no question that in many cases 150 milligrams, 100 milligrams, or even fifty milligrams will bring about very satisfactory results. In cases of inoperable tumor of the uterus, I have been using 100 milligrams in the canal, and 50 in the broad ligament. We are told that these tumors metastasize into the broad ligament, and I believe that this is the best way to apply the radium in such cases. We have never given more than 1800 milligram hours at a single sitting. Dr. James uses 400 milligram hours at a sitting. Some authors think that such a dose has a tendency to stimulate the growth, and I am glad that his results were so good.

The question of using radium in cases of operable cervical growths is of interest. I think that we may say that intra-uterine growths should not be treated by radium alone; but in the case of cancer of the cervix, I am almost beginning to feel that limited, restricted, operable carcinoma of the cervix had as well or better be treated entirely by means of radium. That is a statement that radium operators have made before; but when a little fellow like me is almost convinced that this is the safest thing to do, after fifteen years of surgery without radium, it brings home a lesson that is worth considering, at least. For two years, in the lesions in which we got a cure with radium in operable cases, we have been accustomed to operate afterwards and remove the uterus. I am, however, becoming convinced that it is not necessary to do this. I have a case that I have let alone, and I am going to watch it closely.

In uterine cancer, the patient expects the pain to be stopped by the use of radium; but our experience has not been that this is always the case. In only forty per cent of the inoperable cases was the pain relieved. In sixty per cent, the patients continued to have pain—if not in the bladder and rectum, along the broad ligament. I do not know what to do in these cases, and should like to have Dr. Burnam reply to that question.

Regarding the discharges, I think that we can expect relief from the discharge in about 95 per cent of the cases. There is one type of case to which it is hoped that radium may be applicable; and that is

chorio-epithelioma, which follows so frequently on hydatiform degeneration. I have two such cases in which we used radium first, to stop the hemorrhage, and later, irradiated prior to operation for removal of the uterus. I have one case of chorio-epithelioma at 18 months, and one at 11 months, living and well. I believe that the susceptibility of the embryonal-cell type of tumor to radium has some bearing upon the question. That brings us back to the reference of Dr. Burnam to malignant tumors of the undescended testicle, and, if they were teratomas, we know that teratomas are more or less susceptible to irradiation. There are a number of cases of malignancy that could be talked of or noted. The prostate gland has been a susceptible location for inoperable malignancy with us and in not a few cases we were surprised at the susceptibility of cancer of the prostate gland to radium. In several cases in which we treated cancer of the prostate with radium, the patients are now well, except that they have to have sounds passed. I have never treated breast carcinoma directly with radium, if I thought the case operable. Recurrences after operation, however, are amenable to radium treatment. I have never seen one fail to go down with the use of fifty milligrams of radium for six hours. This treatment will almost always make the nodule regress and stay away. I have never treated such a case in order to prepare it for operation.

Lymphosarcomas are the happiest type of malignancy to get progress in. They all melt away. "If you let a lymphosarcoma patient sleep in the same room with radium," it is said by one man, "the patient will get well." These tumors are very susceptible to radium. Such a tumor of the glands of the neck will disappear rapidly, but it is prone to show up somewhere else. We just chase it around.

Squamous celled carcinoma of the mouth is the hardest problem that the radium operator has to tackle. We have tried both tubes and needles buried in the depths of the growth, and the treatment would cause an intense reaction and pain for weeks, without any very apparent result on the growth. Therefore, we went back to prolonged, slow, dull cauterization, followed possibly by the application of radium, and again used radium when the slough separated. I have several cases thus treated that are well healed over. The mouth squamous-celled cancers often go down after the cautery and irradiation in the mouth.

Lip cancers constitute another class that I should like to touch upon. They afford a problem that is not handled according to any recognized routine. We have adopted the following plan:—If the growth was a muco-cytaneous cancer, we have been able to heal it

with radium; but if it involved the mucous membrane alone or went through and penetrated the deeper tissues, we have irradiated it thoroughly. In two days after this, we have done an excision; and in two more days, irradiated the line of suture. We have also irradiated the scar after healing. There is only one case in our series that has not apparently done well under this treatment.

Dr. Burrus: Is there any further discussion? Dr. McGuire, will you not say something?

Dr. Stuart McGuire, Richmond, Va.: I am sure that all of us have been interested and instructed by these two papers. Some years ago I carefully investigated the subject of radium. After considerable study I became convinced that its proper use required so much experience and attention to details that it should be handled by some one who made it a specialty. Therefore, on the same principle that I employ a pathologist, a roentgenologist and a urologist, I also employ the services of an expert in giving radium treatment.

We are fortunate enough in Richmond to have a man who has an adequate supply of radium, and when I have a patient whom I desire to treat I call him in consultation and we determine whether radium should be used alone or in combination with surgery. If the latter, whether radium should be used before or after the operation. The specialist decides on the number of milligrams, hours and the form of application to be used. Working in this way I have seen no bad results and some wonderful cures. In my experience the effect of radium on an individual case cannot be predicted. Often when I feel confident the radium will do good, there is little or no benefit. Again, when I don't hope for much, the effect is marvelous.

Radium is a powerful and hence a dangerous agent. It won't do for a doctor simply to go and buy a supply and then put it on a patient. To get the best results, and that is what a patient is entitled to, radium treatment should be directed and applied by an expert.

I was especially interested in the first paper on the treatment of carcinoma of the cervix. I have seen a good many cases of cancer of the body of the uterus cured by surgical removal, but I cannot recall a single case of cancer of the cervix that has stayed well. If, by the use of radium or by the combination of radium and surgery we can lift this hopeless class of cases out of their present condition, the work will be well worth while.

I don't think we have yet reached an agreement as how best to handle these patients. My own practice is to operate on the early cases and use radium treatment afterwards. In the late cases I destroy

the growth as completely as possible with Percy's cautery and then apply radium in the crater thus formed. I would like to ask Dr. Burnam whether he thinks it is wise to remove the growth as a preliminary measure, or whether he thinks as good or better results can be obtained by the application of radium to the original growth.

I agree with Dr. Payne that when you treat a patient with cancer of the cervix with radium and get an apparent cure you had better not attempt to remove the uterus surgically. The operation will prove very difficult owing to the sclerotic condition of the tissues and the patient's chances of staying well are not improved.

I have always been more or less skeptical as to the use of radium in the treatment of cancer, however, I have had a case recently that has made me believe that there is a good deal in this treatment. The patient was a married woman, forty-two years of age and mother of three children, who looked fat and well, the only symptom that she had was excessive bleeding at the menstrual period and some slight staining in the interval. She spoke to some of her lady friends about this condition and was advised by them that she was passing through the change of life and it was not necessary to pay any attention to it, that time would soon cure her condition. She finally came to me for an examination and I found that the whole vault of the vagina was filled with a cauliflower-like growth. The rectal and vagina walls were also very much involved. I pronounced the condition inoperable and advised that she go to Dr. Kelly and Dr. Burman for radium treatment. While in the hospital, I put the patient under an anesthetic and cauterized the entire surface with a thermo cautery, after the cauterization I kept the patient in the hospital for ten days and then sent her to Dr. Burman for radium treatment. I had no idea that she would receive any benefit from radium, I merely advised it as a last resort. After radium was applied the patient was sent home, with instructions to have me examine her and report on the case in two weeks. At this time I found that the results were a little less than marvelous, the entire mass had melted away like snow, the uterus was perfectly movable and the pain had entirely disappeared, and all in all the patient was very much improved. I would like to ask Dr. Burman, if it is better to cauterize these cases before using radium. I have noticed that in my cases that have been cauterized before radium was used that the results have been much better, and these were the only cases that have been permanently benefited by radium.

Dr. W. D. James, Hamlet: Dr. McGuire asked whether it is better to cauterize the cervix before radium is applied. We had

a case in which the cervix and vagina were a mass of cauliflower-like growth. We used radium as often as we could get the patient to the hospital. We have used it in eleven treatments. She came today to be examined. At the end of a year, the cervix feels normal. I have never used the cautery; but, judging from the cases in which we have used the small amount of radium as often as the patients could come to the hospital, (from five to fifteen treatments, as close as ten days apart), I do not think that the use of the cautery is necessary.

Dr. McGuire has brought out one point that may be a little misleading. He said that radium should be used in the hands of an expert. That is all right in a city; but in a small town, a twenty-five milligram tube of radium will do a lot of good in inoperable carcinoma of the cervix.

I should like Dr. Burnam, who has had so much more experience than I have had, to close the discussion on my paper.

Dr. Curtis F. Burnam, Baltimore, Md.: I have been much interested in Dr. James' reports. Some of our earliest cases were treated in much the same way that he has treated these patients. We were employing, as compared to present usage, small amounts of radium and giving repeated treatments. Some of the cases treated in this way are still well after a good many years.

It is my impression that where it is possible to do so the single dose treatment is the best in cancer of the cervix and will, in the long run, give more permanent cures. The average treatment given here for a cervix cancer is 4,000 milligram hours; some can be cured by much less treatment and some require more, and I have seen severe injuries follow the use of 2,000 milligram hours of radiation in the cervix. So just what to do and how to do it is a thing that must be considered most carefully in each case.

My own experience does not suggest so much pessimism regarding the operative treatment of squamous cell cancer of the cervix. The first case I ever operated on was a very easy one. The members of the hospital staff said to me, "You have not done this operation well." Still the patient has remaind well now for many years.

In inoperable malignancy there is no question as to the advisability of radium and radium alone. In operable cases, whether it is better to use radium alone or operation alone or combine the two is still to be determined. The combination would seem to be the best. Giving the radium before operation is preferable to post-operative radiation; when the operation is to be done it should be done within the first

four or five days after radiation. Border-line operable cases that are radiated and become operable or apparently cured had best not be removed operatively, at least, that is the impression secured from our own observations. A preliminary cauterization of the cervix does no harm but is not necessary.

PENETRATING AND PERFORATING WOUNDS OF THE ABDOMEN

Fay Roberson, M. D., Durham

Most every active surgeon has a certain number of injuries to the abdomen come under his observation every year. Abdominal injuries are always serious and the mortality and morbidity is high. Let us for convenience classify them as penetrating and perforating.

The penetrating wounds of the abdomen shall include wounds of the abdominal wall, or they may even enter the abdominal cavity but do not perforate either a hollow or solid viscus. Perforating wounds then shall include wounds which not only penetrate into the abdomen but also cause injury of a more or less serious character to some of the abdominal contents. Wounds of either class may be caused by any sharp pointed or cutting instrument, or they may be caused by fragments from an explosion, such as when a shell bursts or when a boiler explodes, or even from fragments of stone in dynamiting. A majority of such wounds, however, are usually the result of a pistol or gun shot. Any one of these wounds should be seriously considered at the very outset, because under any plan of treatment the mortality is necessarily high; varying from 50% to 90%, and each individual case always presents its own problems, which will tax to the utmost the diagnostic skill of the most experienced clinician.

There can hardly be any definite routine for handling such cases. Each case should be handled on its own merits. But certain definite fundamental principles should be clearly understood, for quite often the outcome may be determined either favorably or unfavorably by the way a particular case is handled. The chief dangers, of course, are hemorrhage and shock, early, and peritonitis, later. Considered from the standpoint of diagnosis as to whether the wound is penetrating and perforating or only penetrating. Oftentimes only the abdominal wall or even a part of the thickness of the abdominal wall will be involved and it is only to be determined by cutting through the wound layer by layer. Such a procedure should always be done in a hospital because it may be found necessary to do a very exten-

sive operation. Another most important decision to make early is between hemorrhage and shock. This is most important because the patient may be lost by operating in a condition of profound shock, whereas his chances for recovery would have been better had he been allowed to react from the shock. On the other hand the outcome may be fatal for not operating thinking the patient is suffering from shock, when in reality it is hemorrhage. One should bear in mind the usual points of deferential diagnosis between hemorrhage and shock, because hemorrhage demands immediate operation usually, and shock usually means that the operation should be delayed. We next turn our attention to determining as accurately as possible the extent of the injury of the viscera, if any are injured, there may be pain, tenderness and rigidity, if the wound is penetrating, but if the wound also perforates into an intestine there is quite likely to be an absence of peristalsis. When the wound penetrates only, there may be an absence of peristalsis, but if peristalsis be present there is not likely to be an injury to the intestines. When the wound is directly over the spleen or liver, one is fairly safe in making a diagnosis of injury to one of these organs. Should peristalsis be present in such a case the intestine is quite likely not injured. Should the wound not be in the vicinity of either of these organs but in the area usually occupied by the intestines, and should there be pain, tenderness, rigidity and no peristalsis one may be quite certain that he is dealing with a perforated intestine. Catheterization of the urinary bladder should be practiced when the wound of entrance is in the region occupied by that organ, in order to determine whether the blood is present in the urine or not. The same is true when the injury is near a kidney. Should the wound be near the spinal cord the patient should be made to move the lower limbs if possible in order to determine whether the cord is injured. If hæmatemesis is present frequently there is injury to the stomach which of course is a valuable aid to diagnosis. Of course the wound of entry may be quite a distance from the organ which is injured. But one should not be misled because there are usually symptoms referable to the organ. Having determined as accurately as possible the location of the injury, one next must decide what line of treatment will afford his patient the best chance for recovery. As a general rule early operation is to be desired, for the mortality increases in proportion to the length of time that lapses between injury and operation after the first six or eight hours. Should the patient be suffering from shock, operation should be deferred unless bleeding is present which can be checked. If bleeding is from the liver or spleen operation is usually not indicated because if it is small in amount it usually

checks itself whereas a very extensive hemorrhage operation is usually futile in the majority of instances. When there is doubt concerning the extent of the injury, operation should be done, especially is this true if the patient's condition is good and he is suitably located as to hospital facilities.

There will be times when a patient can not and should not be moved to a hospital at once. Such a case has recently come under my observation; a boy twelve years of age was shot in the abdomen with a 32 caliber bullet from a pistol; when a physician reached him, he was ten miles from a hospital and was profoundly shocked. It was an extremely cold night, to have rushed him away at that time would not only have increased the shock but would have probably caused leakage of intestinal contents and set up an extensive peritonitis. The physician very wisely gave him morphine and treated him for shock. He was brought to the hospital next morning. With this procedure nature was given a chance to come to the patient's assistance. He reached the hospital eighteen hours after the injury was sustained. The condition was good, the abdomen was rigid and peristalsis was absent. Upon opening the abdomen it was found that the small intestines were perforated in ten places, and that nature had attempted to close each one of them. Of course if this patient had been close to a hospital he would have been moved at once, and operated upon as soon as he reacted from shock, but the fact that he was ten miles in the country, and the fact that to have moved him at once would probably have increased the severity of all symptoms, brings up the very practical question. As to the actual operative procedure in these cases much will depend upon each individual case.

As a general rule it will suffice to close intestinal or bladder perforations as quickly as possible and drain, a double lembert suture of cat gut is usually sufficient. Resection should be avoided if possible as it usually means about half as good a chance for recovery. I do not believe it should ever be done unless the intestinal injury is very extensive, or the blood supply has been cut off. When there is a possibility of obstruction owing to the lumen of the intestines being narrowed by several small wounds having been closed, an enterostomy will be found very useful indeed. The enterostomy should be done with a tube proximal to the highest injury. I recently had occasion to resort to this procedure with a very happy result. As was stated before liver injuries are best left alone, hemorrhage from the spleen may require splenectomy. Bullet wounds of the kidney alone usually do not require operation. Wounds of the urinary bladder should be repaired. Wounds of the gall bladder probably require cholecystec-

tomy. A patient should seldom be operated upon while in profound shock, active bleeding probably being the only exception. In such cases blood transfusion should be practiced.

CONCLUSION

First:—Careful examination should be made at once in order to fix as definitely as possible the extent of the injury, and outline treatment.

Second:—Every thing else being equal, early operation is the procedure of choice, the faster the operation is done the better chance a patient has for recovery.

Third:—Do not operate in shock except when hemorrhage is present, then practice blood transfusion.

Fourth:—Do not resect if possible, enterostomy is safe, quick and satisfactory.

DISCUSSION

Dr. Ben F. Royal, Morehead City: The point that brings me into the discussion of this paper is an illustrative case.

About a year ago two negro boys found some dynamite caps, and each one taking a pocket full, proceeded to the steps of a nearby house to crack them with a hammer. The larger boy, with his pants pocket full of caps, sat upon the steps and placed one cap between his feet on a lower step and struck it with a hammer. The cap exploded and this explosion in some way exploded the caps in the boy's pocket, with the result that he was literally blown to pieces.

The smaller boy, who was standing near, had his caps in the pocket of his shirt. These caps, too, were exploded. The force of the explosion blew away the whole of the outer covering of the upper abdomen down to the sheath of the recti. The right hand, with the exception of a small portion of the little finger, was torn away. The right eye was penetrated, and numerous pieces of brass were embedded in the face. The boy was profoundly shocked when brought to the hospital. I thought that the abdominal cavity was penetrated and the viscera perforated, especially the stomach. With no attempt to dress the wounds other than to cover them with towels wrung out of hot salt solution, I put the boy in bed, surrounded him with hot water bottles, gave him salt solution containing adrenalin, and awaited developments. In a very short while his pulse was perceptible, and, to make a long story short, he reacted and was cleaned up, his hand amputated, and the belly wound attended to. I fully expected symptoms of peritonitis, but none appeared.

I took an x-ray a little later and found that numerous pieces of brass cap were embedded in the boy's belly wall or in his abdominal cavity, and I fully believe that several pieces entered the belly cavity. I have asked for the privilege of making another x-ray examination, and I fully expect to find, by comparing plates, that some of the particles of brass have by gravity dropped to a lower level in the abdominal cavity.

I am thoroughly convinced that in these desperate belly cases much harm can be done by too much surgery too quickly done.

Dr. J. H. Shuford, Hickory: I certainly enjoyed this paper of Dr. Robinson's. There is nothing that I can say to add to it, because I heartily agree with him in all his conclusions. Abdominal injuries, we know, are very serious. We had two during the Christmas holidays. I am sorry to say that we lost both cases. One was a gunshot wound of the pelvis, which tore a hole as large as a fist through the pelvic bones, and through the intestines and rectum. This patient, I expected to die, because of shock and much hemorrhage. The other was shot in the lower abdomen. The bullet had penetrated the bladder region and passed out through the right buttock. The boy was brought to the hospital within about two hours after the injury. He was not shocked, and apparently had not lost any appreciable amount of blood; but he had rigidity and tenderness. Catheterization revealed lots of blood in the urine. I operated immediately, and found a hole in the bladder, which I closed up; and four punctures in the small intestine, which I also closed. I instituted drainage, and the patient came off the table in good shape. He lived about five days, dying of diffuse peritonitis. I do not understand why he died. Very little material had escaped into the abdomen, and I had every reason to expect a good result. I did an autopsy, and found that the openings had closed promptly and securely, and that there was no obstruction in any way to the small intestines. He evidently died with a diffuse peritonitis. I mention this case as confirming the fact mentioned by Dr. Robinson, that the mortality in these cases is very high. I enjoyed the doctor's paper, and heartily agree with all his conclusions.

Dr. L. A. Crowell, Lincolnton: I should like to stress this point in reference to the possibility of making a diagnosis of penetration of the abdominal viscera. I think that the one symptom of abdominal rigidity is the most important single symptom in making the diagnosis of injury to the viscera. If you have a gunshot wound of the abdomen and there is no rigidity, you are safe in waiting for an indefinite length

of time; but if you have muscular rigidity, it is, to my mind, positive evidence that the internal viscera have been injured. Whether the patient is under shock or not, I think that we should operate immediately.

Dr. Foy Roberson, Durham*: Mr. Chairman, I appreciate what the gentlemen have said. I have always felt that injuries of this kind were especially important, for a great many reasons. In the first place, a wound that is caused by a bullet whether intentionally or accidentally, often involves two lives, that of the man who shoots, and that of the man who is shot. That, of course, makes the responsibility of the surgeon double. As far as the patient himself is concerned, I am sure that very often we are a little misled into either waiting too long or operating too soon. The case that Dr. Royal mentioned was one in which the patient's life was saved by masterly inactivity. If he had operated, the patient would have died; because he had been subjected to an operation while in profound shock.

There are three kinds of cases. Those in good condition will not be hurt by operation. Of course, the operation must be done early, as Dr. Crowell says. If they have abdominal rigidity and absence of peristalsis, they should be operated on right away.

The second class of cases, in which it is clear what should be done with them, includes those in which the patient is profoundly shocked. These patients should not be operated on, but a chance should be given them to react. The hardest class is the middle class, in which it is difficult to determine the difference between shock and hemorrhage. If operated on too soon, they will die; and if one waits too long, they will die also. It is a question of judgment on the part of the surgeon.

Two things were interesting to me in a case that I saw recently. The boy had been injured at a place that was ten miles out in the country. The usual tendency is to send the patient at once to the hospital in such cases. I had had a patient brought in that way the night before, and when he got there, he was dead. His people were much surprised. In this next case, when the doctor got there and sized up the situation, he said to himself that, as it was a cold night, he would take the chance of the patient's reacting, and not have him sent to the hospital that night. When the patient reached the hospital the next morning, his abdomen was as stiff as a board. There was no peristalsis. He was not ballooned up. Nature had attempted to seal up the holes. There were ten of them, in the lower end of the ileum, some being so close together that in closing the wounds, it brought up this point about the enterostomy. In one place, there were three holes,

and closing them restricted the lumen of the intestine. This sometimes happens, and you are in doubt as to whether it will cause obstruction or not. The thing to do is to put a safety-valve proximal to the injured intestine, and put a tube there, by doing an enterostomy. I did that, purse-stringed the tube, and brought it out of the wound and let the feces and gas escape, which took the tension off the sutures below. I had no distension after the operation. There was a little leaking of feces into the bottom of the tube. In a few days, the tube dropped off, and the wound closed without trouble.

I thank you very much.

INTESTINAL OBSTRUCTION

(With Report of Case)

L. A. Crowell, M. D., F. A. C. S., Lincolnton

The intestinal tract which is about twenty-six feet in length is a great eliminative organ and anything interfering with the free passage of its contents, from a slight constipation to a complete intestinal obstruction, proves a menace to the individual in direct proportion to the interference with free intestinal elimination. The cause of death in acute intestinal obstruction is a form of chemical intoxication. The exact toxic agent that produces this intoxication has not been definitely isolated. It has, however, been proven that it is due to a process of protein disintegration. The most distressing form of intestinal obstruction is that following a surgical operation—post-operative intestinal obstruction.

Nothing is so discouraging and disappointing to a surgeon as to have a case of peritonitis with a quantity of free pus in the peritoneal cavity who has rallied from the shock incident to the operation, on the second to fourth day thereafter develop symptoms of intestinal obstruction. This discouragement and chagrin is multiplied many times when the obstructive symptoms are delayed many weeks after the patient has returned home as in the case I am reporting.

The first symptoms to show in intestinal obstruction are nausea and vomiting coming on after the initial vomiting due to the anesthetic has passed off. A satisfactory action from the bowels cannot be obtained. The nausea and vomiting increasing as the length of time from their onset increases. This differing from the vomiting of dynamic ileus which diminishes as the length of time from the onset increases. The vomiting is of the overflow type. At the beginning

the patient calls for a basin to vomit in but as time passes he just spews it up to fall back into his face.

The vomitus at first consists of the stomach contents stained with bile. Later it becomes very offensive, not a fecal odor in my opinion but a more disagreeable and sickening odor than fecal matter. An odor which is hard to explain but once observed is hard to forget. True fecal vomiting may occur just before the end.

Dr. J. B. Murphy said that the doctor who waited for fecal vomiting before making the diagnosis will pass the undertaker on the patient's doorstep.

Pain recurrent and colicky in type accompanied by abdominal tympany associated with visible intestinal peristalsis; the latter can be brought out more clearly by the application of cold water or ice to the abdomen.

A failure to demonstrate this symptom is of little value in the late stages of intestinal obstruction since the intestines have become exhausted and no peristalsis is evident.

With the possible exception of acute pancreatitis there is no other intra-abdominal condition which produces such profound collapse as acute intestinal obstruction.

The temperature is as a rule subnormal, especially if the condition has lasted any length of time, pulse rapid, eyes and temples sunken, nostrils thin and drawn, features pinched, lips blue, skin livid or deadly pale, covered with perspiration and cold. A question that the late Dr. J. B. Murphy always asked these patients, "How are the hands, are they cold?" If so, he considered the prognosis very bad, and my experience with this symptom has proven the truth of this statement.

Leukocytosis is variable and is worth nothing in the diagnosis. Examination of the urine shows it to contain indican which is a result of putrefaction of the proteins and maybe an important sign in obscure cases.

The treatment of intestinal obstruction is prophylactic and surgical. Prophylaxis in the treatment of intestinal obstruction is more important than in other branches of medicine and surgery. All acute abdominal conditions should be promptly diagnosed and treated surgically, thus avoiding many of the exciting causes of intestinal obstruction.

In doing abdominal operations all tissues and especially the intestines should be handled with the greatest of care and gentleness.

The abdominal viscera should not be brought out of the abdominal cavity if possible to avoid it. If it becomes necessary to remove them

from the cavity they should be well protected by towels rung out of warm normal salt solution. Never use a drain in the peritoneal cavity when possible to avoid it, and when compelled to use a drain do not use stiff rubber tubes or unprotected gauze drains. Frequently a white serous fluid material is found in cases of acute appendicitis, for instance, where the appendix is not ruptured. This is a protective fluid —is not pus nor is it infectous and I believe we do positive harm by draining such cases. I do not desire entering into the discussion of peritoneal drainage as this is too big a subject for the confines of this paper and has provoked more discussion at medical meetings than any subject that I know of, I do not wish to detract from the subject of the paper by injecting the question of "when to drain and when not to drain." I have never seen a case of postoperative intestinal obstruction in a clean case where drainage was not used, however, I am aware of the fact that there are many conditions that might cause obstruction in a clean case that was not drained.

The essential point in these cases at the beginning, is not treatment, but diagnosis.

Once the diagnosis of intestinal obstruction is made, do something, do not wait as every hour of delay increases the mortality markedly.

The reduction of the period between onset and operation is the main factor. We should, therefore, not be deluded into doing something which will obscure the diagnosis and unfavorably influence the course of the disease.

Do not use morphine to destroy the symptoms of the disease and to lull the patient and yourself into the idea that he is better. Morphine has been one of the greatest boons to suffering humanity that the medical profession has ever known. On the other hand I know of no remedy which can do more harm than morphia indiscriminately used. This applies not only to acute intestinal obstruction but to all acute abodminal conditions. I would, therefore, urge that morphine be not given at all in any acute abdominal condition until the diagnosis is made.

I know that every one who has done any amount of surgery has procrastinated in these cases hoping that somehow or someway, something would turn up to relieve the condition. This line of action in my case has always proven to be vain hope and I have settled the question of what to do in these cases in the future and have decided on immediate action, as soon as the diagnosis is made positive. Since adopting this rule I have saved cases in which I am sure delay would have meant failure. I know of no man who is so

unhappy as one who is watching an unoperated case of intestinal obstruction.

In operating for this condition we should make all speed consistent with good work as these patients at best are bad surgical risks. I know of no condition in surgery where good judgment and finished technique are of so much importance.

Stomach lavage should be done on all of these cases before the anesthetic is started, thus avoiding the inconvenience and danger of having the patient vomit while under the anesthetic.

In operating for this condition, we should in a general way follow the old surgical aphroism, "open the abdomen and meet the indications." However, there are a few special indications in intestinal obstruction that demand special consideration. For instance, in those neglected cases where the patient is very much shocked, abdomen distended, extremities cold, pulse rapid, it is decidedly better to pick up the first loop of intestine which presents itself in the wound and do an enterostomy in the simplest way possible, as the extra time consumed in looking for the cause of the obstruction might jeopardize the life of the patient. This simple procedure has relieved permanently some desperate cases which I have had, but should it not permanently relieve, it always gives temporary benefit and later when the patient's condition is more favorable a second operation can be done to relieve the obstruction.

In this connection I quote verbatum from an article in the Annals of Surgery of February 1921, by Shelton Horsley, describing a method used by him in doing an enterostomy.

"After delivery of the loop of intestine, intestinal clamps are placed about six inches from each other and the border of the bowel is grasped with mosquito forceps or Allis forceps about two inches from one of the clamps. A similar point is fixed near the other intestinal clamp, and while traction is made on these forceps to make the bowel between them taut, the bowel is incised. This should be done with a sharp knife and should go down to, but not through the mucosa. The incision is two inches long. After separating the peritoneal and muscular coats from the mucosa, a purse-string suture of linen is placed at one end of the incision and the mucosa within the grasp of this purse-string suture is punctured. A medium-sized soft-rubber catheter, in which there are one or more additional perforations, is quickly inserted through this puncture and the purse string suture then transfixes the catheter to hold it in position. The catheter is buried on the exposed mucosa in the incision with a continuous right-angle suture."

This modified technique of puncturing the mucosa rather than in-

cising it along with peritoneal and muscular coats is evidently a distinct advantage in lessening the probability of a fecal fistula following the operation, and should a fistula follow, it would not be so likely to persist for any length of time.

I note in the article by Horsley above referred to that he condemns the threading of the intestine on a glass or rubber tube in doing an enterostomy which was in vogue several years ago. In this opinion I heartily agree as this handling of the intestine could result in nothing but harm. The method has always appeared to me as unsurgical and productive of no good and I have never had the courage to use it but one time and was thoroughly disgusted before I completed the procedure.

After the operation is over, I do not think that any one thing contributes so much to the bringing of a patient out from shock as the continuous application of hot water bottles to the abdomen and I am in the habit of using three of four of them as hot as can be borne, continuously from 24 to 48 hours following the operation. They relieve shock, lessen pain and prevent tympany.

I shall make the report of the case as brief as possible, as I am aware of the fact that a long drawn out case report is not always entertaining to the audience.

Ira S. Age 14 years. Family history, negative. Entered the hospital May 23, 1919.

Present illness:—Began to complain, two days previous to entering hospital, with colicy pains in epigastric and umbilical region, at the same time passing considerable blood and mucus from the bowels. His bowels had been loose for five days. Blood count Hb. 75%; Leukocyte 26,000; Diff. P. 85%; Temp. 103$\frac{3}{5}$; Pulse 140.

On superficial examination we were inclined to believe this patient had an attack of acute dysentery but after a thorough examination of his abdomen which was very rigid, somewhat tender on pressure and a glance at his blood picture, we decided that he had acute appendicitis—an appendix which had ruptured.

In considering the diagnosis of abdominal conditions, I look upon muscular rigidity as a symptom of great importance, trouble confined to the intestinal canal does not give rise to a board-like rigidity, and when this latter condition is found it is positive evidence that something is going wrong outside of the abdominal viscera, and a rigidity that does not disappear under anæsthesia always points to serious trouble within.

At 2:05 P. M., on day of admission to hospital, a right rectus incision was made and when peritoneum was opened, cecum was found very red, appendix located on inner side of cecum, ruptured near its distal end and considerable amount of fecal matter and pus had escaped. There was no effort on the part of nature to localize the trouble. The appendix was removed in the usual manner and a cigarette drain placed at its stump.

The patient had a rather slow convalescence and left the hospital on June 15th, 1919, or twenty-four days after operation. The wound had almost healed and he did well until August 8, 1919, seventy-seven days after operation, when he developed acute obstructive symptoms. He was brought into hospital on August 9, 1919, with temperature 97, very rapid pulse, periodical attacks of intestinal cramps, vomiting and had a very much distended abdomen. Leukocyte count 10,000. Diagnosis of intestinal obstruction was made.

Patient was taken to the operating room and stomach washed out with normal salt solution before anesthetic was started. An incision was made on innerside of original incision and when peritoneum was opened, intestines were found very much distended. A superficial search was made for the cause of the obstruction but was not prolonged because of the desperate condition of the patient. His pulse was ranging around 150.

The first loop of intestine which presented itself in the wound was picked up and an enterostomy done. A tube was introduced into gut and a pint or more of fecal matter and gas was drained off. A rubber tube was anchored in the opening in bowel and held in place by two purse-string sutures of catgut in the same manner in which you would do a cholecystotomy.

On August 11th, 1919, or two days after operation, patient had several actions from the bowels by the natural route.

On August 19, 1919, or ten days after operation, the tube was removed from intestine and bowel contents continued to escape through wound for some time.

A small fistula persisted, discharging a small amount of fecal matter until December 17, 1919, when the actual cautery was applied to tract. After this the fistula completely healed.

Patient did fine and did a regular farm hand's work until September 10, 1920, thirteen months after second operation or fifteen months and two days after his first operation, when he developed obstructive symptoms. He was admitted to the hospital on September 14, 1920, with pulse 104; Temp. 98⅘.

A number of enemas were given without results and as his symptoms continued to grow worse, on the next day, September 15th, a median incision was made and an adhesive band about the size of a lead pencil leading from old scar downward toward pelvis where it was attached to a coil of small intestines, was found and divided. This band had almost completely obstructed the gut near the point of the old incision. In searching for the obstruction, it was necessary to bring several feet of the small intestines out of the peritoneal cavity on to the abdominal wall where they were protected by hot towels. The intestines were very dark in color and very much distended. Before returning them into abdomen we did an enterostomy, draining off a pint or more of fecal matter and a great deal of gas. The gut was then closed with a double line of catgut sutures. An attempt was made to loosen the gut from the anterior abdominal wall at the site of the old incision, at the point where the old fecal fistula existed; the idea being to leave a portion of parietal peritoneum attached to gut.

During the manipulations however, we inadvertently opened the intestine. It was then entirely freed from the abdominal wall. This left a considerable hole in the intestine which was closed up by three layers of catgut and dropped back into the abdominal cavity.

Patient was put to bed with instructions to give four ounces of normal salt solution by rectum every two hours until the three injections had been given. After this the same amount was given every three hours. Hot water bottles were

placed on abdomen and kept up continuously for forty-eight hours. The patient immediately began to improve and on the second day following operation, had several good actions from the bowels without the use of purgatives, which should not be given early. He had an uninterrupted convalescence and left the hospital three weeks following the operation, and is in perfect health at this time, and I sincerely hope that I shall never see him as a patient again.

SUMMARY

1st.—The importance of an early diagnosis, (b) Avoid the use of Morphia until the diagnosis is made.

2nd.—The importance of washing out stomach before the anesthetic is started.

3rd.—The intestinal toxema as a result of the obstruction is the cause of the severe shock and any treatment which does not deal with this, as well as with the obstruction is incomplete.

4th.—An enterostomy should be done in every case where the toxemia is well marked and where there is much intestinal distension.

5th.—The value of hot water bottles on abdomen in the postoperative treatment.

DISCUSSION

Dr. Ben F. Royal, Morehead City: You have just heard the words of Dr. Long, the master craftsman, the finished technician. What he has to say can always be considered authoritative.

As a younger member of the profession and one with far less experience, I hesitate to express an opinion. One fact, however, has impressed itself so indelibly upon my mind that I can not refrain from emphasizing it. "Medical curiosity" is a good thing at times, but in these desperate cases it is out of place, in my opinion. Formerly, when this type of case presented itself, I would open the abdomen and often spend too much valuable time trying to determine just what caused the obstruction. In other words, I would explore the abdomen for constricting band, a volvulus, or a growth, and consume time that was most valuable. As a result of that routine I lost a large percentage of my obstruction cases. Now my statistics are much more satisfactory, as a result of one change in technic. I "get in and get out" quickly. If the case is desperate—and most of our cases are—I grasp the presenting loop of gut and do an enterostomy as quickly as possible, and get the patient back in bed. It is remarkable to me how many of these cases clear up without any further operative interference.

To summarize, I would say: Don't kill the patient trying to find out why he is so obstructed. Get in quickly, do an enterostomy, and get out, and your patient will live to thank you.

Dr. Burrus: I will ask Dr. J. W. Long, of Greensboro, to open the discussion on this paper.

Dr. J. W. Long, Greensboro: I have listened to Dr. Crowell's paper with a great deal of interest, and I can endorse what he has said in practically every point.

I first want to thank him for calling attention to this fact, if it be a fact, that we do not have muscular rigidity as long as the lesion is confined to the inside of the abdominal viscera. However, I am hardly prepared to accept Dr. Crowell's dogma that muscular rigidity always means peritoneal involvement. Certainly looking at the matter from a clinical standpoint we often find muscular rigidity and on opening the abdomen find only an acutely inflamed appendix without any evidence of peritoneal involvement. At the same time, I think that Dr. Crowell's explanation is reasonable and offers a valuable guide in the estimate of abdominal conditions. Indeed, marked rigidity usually means a beginning peritonitis, and, of course, the peritoneum is outside the viscera.

I should like to emphasize, as well as I may, the Doctor's dictum that the viscera should be handled very gently, especially in these acute cases; the more acute the case, the more gently the viscera should be handled. I will go a step farther, and say, "Do not handle the viscera at all." That may sound paradoxical, but it is remarkable how much a skilful surgeon can do inside the abdominal cavity and not handle the viscera. Try to keep out of the way of them.

At the risk of imposing upon you I am going to tell you what my Superintendent of Nurses said to me the other day. I know this is a personal matter and personal matters are rarely in good taste in a discussion. But I believe that it is worth repeating before this audience. The Superintendent had been trained by one of the foremost surgeons in America, a man who has a large clinic and is known wherever surgery is known as a great teacher and a successful surgeon. She said to me: "Dr. Long, your abdominal cases get along much better than those of the surgeon by whom I was trained, and you know I am devoted to that man and think there is no one in the world like him; but I have observed for nearly a year that following operation your abdominal operative patients have less nausea, less distension, and less disturbance; and I believe that it is because *you*

handle their viscera less.'' That is the secret of the whole thing. The less you handle the viscera, the less postoperative disturbance your patient will have. Of course, you have to handle the organs some. It is impossible to go into the abdomen and do anything of consequence without producing a certain amount of trauma. Now, it is in just the kind of cases which Dr. Crowell would do an enterostomy that trauma of the intestines is so harmful. These patients are already suffering with peritonitis, intestinal obstruction and are often ready to succumb to their toxæmia. I fear the method of doing enterostomy as described by Dr. Crowell involves too much traumatizing of the intestines. The limits of this discussion forbid a description of the method but I refer those interested to my article published in volumn xxix, page 59, of the Transactions of the Southern Surgical Association and volumn lxviii, pages 833-835 of the Journal of the American Medical Association.

I should like also, to emphasize the necessity, which he mentioned, of prompt interference in cases needing enterostomy. I believe that it is far better to operate, and occasionally make a mistake in regard to the necessity of opening the abdomen, than to get into the habit of waiting until the abdomen is board-like and the pulse is 140 or more, and stercoraceous vomiting occurs. If the experience of the last decade has proved anything to surgeons, it is the necessity of prompt interference in these cases.

Mr. Chairman, may I take this occasion, while I am on my feet, and I have not bothered you much, Sir, to say that I feel proud of the Surgical and Gynecological Sections of this Society. (Applause.) Knowing, as I do, the history of surgery in North Carolina, and interested, as I have always been, in the development of the younger surgeons in the State, I believe, Sir, that we have good cause to be proud of what North Carolina surgeons are doing. (Applause.)

Dr. Burrus: The paper is open for general discussion. I shall be glad to hear from anyone.

Dr. J. F. Highsmith, Fayetteville: There is a lot to be said on the paper of Dr. Crowell, which covered all the ground thoroughly. I agree with him that there is nothing that puts a surgeon more on a tension than watchful waiting, when he suspects abdominal obstruction. I have learned from sad experience on one occasion the importance of washing out the stomach before beginning the anesthetic in these cases and leaving the tube in the stomach while giving the an-

esthetic. Some of these cases will drown themselves if this precaution is not carried out.

One character of case that I do not remember anyone mentioning is that of a partial obstruction which comes on gradually and you are not certain of the diagnosis. It presents the appearance of duodenal ulcer. The patient has been drifting along with a partial obstruction. He may give a history of the bowels moving with much pain, vomiting, and is extremely sick. At operation the trouble is found to be a partial obstruction that has been going on for several days; and a considerable portion of the bowel is gangrenous.

In regard to the question of hot applications, I would say that we have for some time used the electric lights or dry heat in place of the hot water bottle.

I am sure that each one present joins with me in assuring Dr. Crowell that his paper has been timely and much enjoyed by all present.

Dr. R. A. McBrayer, Sanatorium: Since we are here to study and to learn of one another, I cannot keep from saying something of Dr. Crowell's statement concerning indican. I doubt seriously whether, as the test is usually done, it is worth two cents. There are several reasons for this belief: In over two thousand determinations, we have found that constipation of even three or four days' duration will not always give a high figure for indican, and that there are few normal persons who will show indican. We should determine the presence of a hyperindicanuria, since indican is a normal constituent of urine. It must be done very carefully and with great precision. All the reagents used should be measured in a graduated test tube, so that you can read with a colorimeter the amount present.

I doubt, too, whether, with such an acute pathology, we would not get some disturbance of the function of the liver, where tryptophan is conjugated with glycuronic acid; and we might not get much indican. Even where you can put the patient on protein-free diet, in very few cases only will the indican fail to appear for over twenty-four hours.

Dr. Crowell did not state whether indican was of much value in his opinion, but I doubt whether, as it is usually determined, it is worth considering at all.

Dr. W. D. James, Hamlet: I have had, in the last two years, some very bad experience in cases of intestinal obstruction, from the anesthetic. Within six to twenty-four hours after the giving of the anes-

thetic, they have gone to the bad. We never use anything but a two per cent solution of novocaine to perform the operation when the cases are very bad and we know that they will take the anesthetic badly, because we are afraid that they will drown in their own secretions.

Dr. Crowell, closing the discussion: I have enjoyed the discussion of my paper immensely. One thing that it failed to bring out is something that I hoped would be mentioned; that is, the use of morphine. I read this paper before the district meeting, and the members jumped on me about not using morphine in acute abdominal conditions. Since reading that paper, we have carried out some investigations in regard to what effect the use of morphine has on a case of acute appendicitism, for instance, and what effect it has on the blood count. We have proven almost conclusively that it lowers the temperature and reduces the leukocyte count. If so, this is the way in which it obscures the symptoms and makes the diagnosis more difficult.

I thank you very much.

X-RAY THERAPY AS AN ADJUNCT TO SURGERY

C. C. Phillips, M. D., Charlotte

This paper was not written with the idea of bringing out anything which is really new, but to present a brief review of some well grounded facts in regard to this form of therapy as an aid to the surgeon in his routine work of treating disease.

Almost since the time of discovery of the x-ray there has been an upward trend of its use in therapy, but only since the advent of the Coolidge tube with which massive doses can be given has its value in deep therapy gained much prominence.

We do not present the claim that this is a specific remedy for the conditions to be discussed, but we do believe that it is the most valuable single agent which the surgeon has at his command as an aid to him in the treatment of these conditions.

First, let us consider benign tumors, of which uterine fibroids are the ones which the roentgen-therapeutist is most frequently called on to treat, unless we would class hypertrophied tonsils as a benign tumor. In the treatment of fibroid, as in surgery, we have indications and contra-indications to the treatment.

First the indications are: All cases in which surgery is contra-indicated, as in older women with anemia so far advanced as to be the cause of an anemic heart. All patients of whatever age in which there is organic heart disease, diabetes mellitus, lung disease or goiter

with cardiac symptoms, and in the latter the x-ray can be used to great advantage in combating the symptoms referable to the thyroid.

Treatment is contra-indicated in cases in which by resorting to surgery the reproductive function may be retained, cases in whom malignant or gangrenous degeneration has begun and fibroids which are associated with diseased conditions of the adnexa. Also in patients presenting such severe symptoms that there is more danger in waiting three or four months for results, than there is in resorting to surgery. Young women with fibroids should never be treated with the ray unless surgery is contra-indicated, if there is any chance of saving the reproductive powers by operation, as the ray, in almost every case, destroys the menstrual function.

Although the action of the ray on the graffian follicle helps to produce a retrogression of the tumor it also has a destructive action on the tumor itself as evidenced by the fact that Beclere and Hanks both report cases in which treatment has been successfully carried out by directing the ray so as to penetrate the tumor and not the ovaries, and in these cases they state that the menstrual fuction has kept up and the women borne children afterward. All the children being normally developed.

The chief objection filed against this method of treatment is that it may cause the tumor to undergo malignant degeneration, but on thoroughly searching the literature on the subject we have been unable to find report of a single case in which this has occurred. The method of treatment in these cases is to cross fire through the tumor and ovaries, at each treatment covering from three to twelve skin areas, this depending, of course, on the size of the tumor, giving a full skin dose to each area, repeated every four weeks and taking from four to ten series to produce a cure. The number of series depending on the age of the patient and the size of the growth. The older patients make more rapid progress than the younger ones. After the first treatment the bleeding at the subsequent menstrual period may be increased but after this it subsides and the hemorrhage is the first symptom to disappear, followed by a gradual retrogression of the tumor.

The function of internal secretion of the ovaries is not destroyed by the amount of treatment necessary to produce atrophy of the tumor. Hanks makes the statement that in her experience roentgen treatment of these tumors is 100% satisfaction.

Metropathies due to overactivity of the ovaries may be successfully treated, it taking as a rule only a few treatments to correct this trouble.

Of disease of the lymph nodes the one most frequently seen is tuberculosis. In the surgical treatment of this condition we can never be sure that all the diseased glands have been removed, as they may be so located that it is very difficult or quite impossible to remove them and there is usually an unsightly scar produced. In these cases we think the treatment by x-ray is quite a relief to the surgeon, and by this method of treatment, by giving particular attention to technique and regular treatments which are very essential to good results in treating any condition, beautiful results are obtained with no resultant scar. Boggs reports 500 cases with 90% of cures. Our experience has been fully as gratifying as this.

There is some difference of opinion as to technique to be used here. Some prefer massive doses at monthly intervals and others fractional doses at weekly intervals. Personally, we prefer the fractional dose method as we feel that we get better results by its use.

If we may class Hodgkins disease under this heading. It is agreed by all observers that this cannot be cured by roentgen treatment but it can, in some cases, be benefited and the patient kept comfortable and his life prolonged for sometimes several months.

As malignancy is the bete noir to all of us we think we appreciate any method of treatment which helps us with it fully as much as we do in any condition. Almost since the x-ray has been known it has been successfully employed in the treatment of superficial epithelioma but not until a few years ago was it used to any great extent in treating deep seated malignant conditions. We would not, for one moment, think of treating an operable malignancy by this method and excluding surgery, but would advise post-operative raying in all cases of malignancy, by this method endeavoring to destroy any cells which may be left at the site of the lesion and also covering the glands which are likely to be involved. There can be no fixed rule as to how much treatment to give in these cases except to keep it up until there is no danger of recurrence. We often have patients referred to us who have been told by their surgeon that they should have x-ray applied to the scar a certain number of times, but this means nothing to the roentgen therapeutist as his object is to destroy all the cancerous tissue both at the site of the lesion and in the lymph glands, regardless of how long it takes to do this. To do this, it often takes a longer period of time than the laity or even the profession think and it is sometimes necessary to see the patient on two to four successive days for each series for several months. The interval between treatments is gradually lengthened until we feel that there is no danger of recurrence. It is often necessary to cover quite a number of different skin areas

and in some patients nausea of a rather severe nature is produced by too long exposure at one sitting, thus the reason for spreading the series out over several days.

Warnekros reports that of 174 cases of cancer of the uterus operated in the Berlin Clinic, 119 were not treated by the ray and that the deaths in these cases from recurrence was 55.4%, while 55 were systematically rayed and the deaths from recurrence were only 18.5%.

Boggs states that 25% to 50% of recurrences in breast cases are prevented.

These figures may be applied to cancer in any other part of the body. Quick and many other observers strongly advocate pre-operative roentgen treatment of cancer, and by this destroy the growing edge of the lesion and as many as possible of the cells lodged in the lymph nodes and then following the operation with raying as before spoken of.

In inoperable cancer the ray has proven of inestimable value as by its use many cases may be so improved as to make them operable, this having been sufficiently proven by numerous observers to make it worth while to try this method in all these cases. Even if the condition does not become operable the patient is relieved of a lot of suffering. Radium used in conjunction with the ray is beneficial as it can, in many cases, be applied directly to the lesion and the x-ray applied by cross firing from without. On a recent visit to the Mayo Clinic I was told by Dr. Bowing that they ray all malignancies after operation and follow very closely with gratifying results.

In conclusion we feel that the ray is the most valuable single agent which the surgeon has at his command as an aid in the treatment of the conditions mentioned.

And to those suffering from cancer, it is the greatest boon ever brought to them, altho like other agents not always curative but almost always prolongs life and usefulness and relieves quite a lot of the suffering which has heretofore attended this condition.

And lastly, let us emphasize that the treatment should be started as early as possible after operation.

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DISCUSSION

Dr. Oren Moore, Charlotte: Mr. President and Gentlemen: I am not a Roentgenologist. I belong to the class that Dr. John B. Murphy used to characterize with scorn as "operating gynecologists." There may be operating general practitioners, and other gynecologists or others who combine surgery with what they are doing. If such are present, they will agree with me that surgery is not always what it is cracked up to be, and is, at best, but a poor way out of the dilemma in many instances. I feel that Dr. Phillips should be seconded, in some sense, by a man who has had a little experience in getting out of a hole. If anything can be found that will add to our efficiency in treating these recurrent, more or less inoperable conditions, it should be employed; and it seems to me that there is a great field for the x-ray following surgery, or even substituted for it. If more men would believe in the statement that Dr. Phillips has made, better results would be obtained. You gentlemen know of cases of prolonging life and relieving suffering. I am going to testify to the advantages of the treatment in fibroid of the uterus. Many women come in with fibroids that have been overlooked and not called attention to until the patient is exsanguinated or toxic. There is a certain amount of toxema from large fibroids, surgery is inevitable, yet the patient is in bad condition. Transfusion, building up and tonics are necessary to make her ready to stand an operation. Many patients can not afford to lie around the hospital for long pre-operative periods. The x-ray will cut down the amount of bleeding, the size of the tumor and a part of the toxemia, and make the patient a more certain operative risk, within a shorter time, if it does no more. In the case of patients nearing the menopause, for whom surgery is not so much indicated, the x-ray may obviate the need of surgery. You can cut down the symptoms the patient is getting, and the tumor may be left harmless. In some instances I have seen that done. I have followed the work of Dr. Phillips, and that of his predecessor, Dr. Squires.

Another thing that I should like to emphasize is the routine raying of the scar tissue after amputation of the breast in carcinoma. There is a certain amount of recurrence *in situ,* after this operation, in many cases. If the raying is undertaken immediately after the amputation, at the discretion of the x-ray man, this recurrence may be prevented. Never tell the patient that she must be treated for three or four weeks or must have three or four treatments, but let her go and be treated as often as the x-ray man thinks necessary.

As to glandular therapy, I am not prepared to say. I have seen one case of diseased glands in the neck that no one would undertake

to remove, after the x-ray treatment had been given as the scarring was too great. I think that was a rather unusual case.

Dr. Phillips did not take up the raying of thyroid tumors. I believe that many such cases are benefited by raying. You cut down the thyroid toxema and the size of the tumor. Thyroid surgery is very difficult surgery, and is not undertaken with assurance or likelihood of success. X-ray treatment is the best way out in the smaller communities for the treatment of thyroid toxemia cases.

Dr. Phillips, closing the discussion: Gentlemen, I appreciate the discussion, and especially Dr. McBrayer's constructive criticism. I did not go far enough in the treatment of tubercular conditions, and I agree that some good results can be obtained in treatment of tubercular conditions other than adenitis. I am glad that he brought out the fact that there is a difference in the technique that we use in the treatment of tubercular glands. We have tried both methods, and feel that we get better results from the fractional than from the massive doses. With frequently repeated small doses we produce a lymphocytosis, while with massive doses this is not the case.

In Dr. Moore's discussion, he mentioned that the scar should be treated after operation in malignancy. I want to say that if you treat the site of the lesion, and go further, and treat all the glands which might become involved in metastasis, you will get far better results than if only the site of the lesion is treated.

THE IMPORTANCE OF EARLY DIAGNOSIS OF UTERINE CANCER

J. F. Highsmith, M. D., F. A. C. S., Fayetteville

I feel keenly how incompetent I am and the responsibility imposed upon me when I try to briefly express my ideas as to the Early Diagnosis of Uterine Cancer—a subject so important.

The title of my paper, namely: The Importance of Early Diagnosis of Uterine Cancer, in the words of Dr. J. F. Percy, who has given so much thought and study on this subject, epitomizes the whole of the cancer subject. As the saying goes in all business propositions, "this is the whole thing in a nut shell," namely: the early diagnosis of this dreadful disease, CANCER.

Now the question is, how can this be accomplished? From our view point we must see these cases early, as this is the real nub to the successful treatment. We all know, to our great sorrow, that we see them early only in exceptional cases. Did you ever stop to think that

the treatment of cancer is a different proposition from most other diseases which physicians are called upon to treat, in that untreated they ALL DIE; treated, especially if diagnosed early, modern methods employed, and the disease located where it can be reached, we do not go far amiss in claiming that practically all of these cases recover. But sad to say it has been our experience in the past as well as the experience of our colleagues that when we see a case of cancer, the disease has reached that stage where the problem of diagnosis need no longer disturb us. They have reached that stage where the question is no longer one of diagnosis, as I have before stated, but one of treatment, namely do the best you can, and this based on many factors, most often palliative, removing as many rough places in the road to the grave as possible. How many of us have prescribed opium in some form to alleviate pain and make life bearable to some devoted mother, carrying a burden of sadness in our hearts.

In the light of present knowledge on the subject, knowing the conditions which develop into cancer, stimulated by daily irritation which conditions can be successfully treated and cured with no subsequent malignant complication if handled in time, the honest, thoughtful, painstaking diagnostitian must realize the burden imposed upon him and sound the alarm of danger with so much force that "she who runs may read" the message: Cancer can be prevented if the initial focus is properly treated; cancer may be cured if taken in time. Oh! may each one under the sound of my voice hear the call to arms against this most dreaded of all diseases.

Many of us are and have been sleeping at the switch, however, not intentionally so, while the lightning express loaded down with ignorant human lives, predisposed to cancer, have unnecessarily gone to premature graves.

Generally speaking it is estimated that the cancer mortality in different types for the United States annually will closely approach 100,000. For uterine cancer alone about 1,400 annually. The people at large must learn to recognize the danger signal and seek advice and treatment at the early stage when cancer is the most curable. No matter how great his skill or adequate his training, the doctor cannot help a patient who does not come to him. Study of considerable number of cases reported by many different doctors, would indicate that on an average people effected with this disease, wait almost exactly twelve months after noticing first symptoms before they consult a doctor about it. The tendency is to postpone the evil day. "Watchful waiting" has its place and should be exercised in many critical moments at the bedside of the sick, but it must be absolutely ruled out

when we come to the question of cancer—if there be the slightest possibility of malignancy the suspected focus must be promptly removed.

The beginning of cancer is usually painless; for this reason its onset is doubly insidious and treacherous, therefore, danger signals must be looked for and heeded in time.

Patients with uterine cancer can be divided into three groups: First—Those who come at the very beginning of the trouble, the exception. Second—Those who delay three or four months before attending to this matter, occasional. Third—Those who put off treatment until they experience pain or have a bad discharge for a year or more, frequent.

Perhaps the most irrefutable argument that cancer is due to the irritation of trauma is the fact that out of every one hundred cases of cancer of the uterus, ninety-seven of them occur in women who have borne children. In other words, the uterus that has not been traumatized is practically free from the dangers of cancer. I am sure that one of the saddest things that I have ever seen is for a mother of several children with an inoperable cancer of the uterus to come seeking relief, and all because of somebody's ignorance or neglect. A standing order for every child bearing woman should after each labor have all lacerations repaired. If at any time, especially for those who are thirty years of age, there is the least irregularity of menstruation, go at once to a competent surgeon. A stitch in time here will save countless lives.

One of the earliest symptoms of cancer is uterine hemorrhage. Wherever there is uterine hemorrhage that cannot be accounted for, the uterus should be most carefully examined to see if there be any signs of malignancy, as it is only in the early stages of the growth that cure may be hoped for. Hemorrhage at the menopause may be and often has been misleading. The true menopause may signify widely different ideas, not only to the doctor and patient but suffice it to say that every medical man realizes that the period during which the menopause is in progress of establishment is a trying one. It comes at a time when every woman is inclined to the development of malignant growths and degenerations, with many and varied forms of nervous disorders, for this reason many women at this age look upon uterine bleeding of a more or less normal occurrence, and sad to admit yet it is true, some physicians pass it off by saying that it is natural and advise such patients that when they have passed their menopause it will cease.

It is at this stage of life that most depends upon early detection of malignant growths of the uterus and the immediate and thorough removal of diseased tissues. Therefore, I present this paper to sound a note of precaution to everyone to be on their guard and to never regard uterine hemorrhage from the age of thirty to sixty years of life as a trivial affair, but should always put forth every effort to properly and immediately diagnose the cause of the bleeding and insist upon it that the patient receive the proper treatment at once. Delay is dangerous. Hemorrhage at this time of life in practically every case means uterine carcinoma, unless other causes can be established. If cancer gave extreme pain from the start we would make an effort to get rid of it in short order.

Carcinoma of the cervix can easily be diagnosed by inspection and palpation. Uterine polypi can also be easily detected, but when all such local causes of hemorrhage are excluded, in the absence of constitutional cause, uterine carcinoma is almost certain. The slightest irregularity of the menstrual period should be looked upon with great suspicion. If the menstrual functions should cease in any way abnormal, then a most thorough and painstaking history and examination should be made in every case. All such cases should be made to thoroughly understand their condition and the probability of their developing malignant disease. If your first examination gives a negative result, do not give your patient too much encouragement but explain to her the importance of repeated examinations at short intervals until she has well passed the menopause and all abnormalities of the menstrual functions have long subsided.

Hemorrhage occuring in an individual giving such a history is very significant of carcinoma. If the slightest doubt a curettment of the uterus should be performed and the curettings subjected to a thorough microscopical examination by an expert Pathologist, when carcinoma of the uterus can easily be detected where otherwise it was impossible. If the cervix be especially hard at any point or shows little prickle-like points that bleed easily then a wedge about a quarter of an inch broad and half inch in depth should be removed, put in alcohol or formaline and sent at once to the pathologist. The mucus membrane in health as seen under the microscope is just as different from that of cancer as are two patterns of wall paper.

For the sake of the people at large and suffering humanity God speed the day when different Societies will still further their work in their educational campaign in fighting cancer with facts. First—Carrying a message of HOPE to the public; What cancer does; What it is; How it begins; and how the disease may be prevented and cured.

Many of the leading organizations in this country have long since organized themselves in this movement, having appointed committees to act, placing their best efforts in the educational campaign to bring this most vital question before the people in a practical way. Leaders in this have been the American Medical Association, The American Gynecological Society, the American Surgical Association, the Clinical Congress of Surgeons of North America and last the American Society for the Control of Cancer. Under the latter State organizations have been organized; the State of North Carolina has its committee with Dr. J. W. Long, of Greensboro, chairman. We should give this movement every assistance within our power.

It was by educating the people at large through the medical profession that a patient suffering from appendicitis has learned to seek treatment within the first twenty-four hours, and the cancer patient must learn to seek treatment as promptly as the appendicitis patient.

In conclusion, first the ravages of this disease can be diminished by the dissemination of knowledge leading to its early diagnosis by the patient and physician and prompt treatment. Cancer is curable in the majority of cases if treated early. These facts have been established by the work of the Research Laboratories. Cancer in the beginning may cause no pain or other symptoms of ill health.

No conscientious doctor will treat a case that might mean cancer without thorough examination.

DISCUSSION

Dr. Burrus: I will ask Dr. Oren Moore to open the discussion of this paper.

Dr. Oren Moore, Charlotte: I take pleasure in opening the discussion on this paper, both because it is a very excellent one and because it is on a very pertinent subject. We shall have to reconstruct our ideas about cancer as medical men, and also reconstruct the ideas of the women of the State in regard to the subject, if we expect to get the best results in the preventive treatment of this disease. By reconstructing our own ideas, I mean that we should forget the textbook picture of cancer. The picture of cancer in any woman as given in the text books is not a picture of a localized lesion, but of a general carcinomatosis; and if we wait to recognize the existence of cancer until we see the symptoms described in the textbooks, we shall have gone far beyond the period of doing good. We must reconstruct our ideas as to the pre-cancerous stage, if there is such a stage. We must

not have the watchful waiting idea that we have in some other methods of treatment.

We must reconstruct the idea that all sorts of changes of function are usual with women going through the climacteric, and must impress upon the women that the menopause is just as normal as the menstruation itself, that women should stop it as easily as they approach the function of menstruation; and that they should go through the one change as easily as the other. Midwives have the habit of saying, "You may expect this and that. Mrs. So-and-so had a discharge, and it was all right. She flowed one time last year, and twice this year; and it is all right. If you go to a doctor, he will laugh at you, and say you have change of life." That is a perverted doctrine, and one that has caused the death of many women.

What Dr. Highsmith has said is correct in every detail, except in one: He talked of taking out wedges of tissue and sending the specimens off for examination, as a diagnostic measure. I think that this should never be done, unless you have frozen sections made and are prepared to operate at once, if it proves to be malignant. I think that even the few days that it takes to send the specimen to the laboratory and get the result of the pathological examination may prove to be the period in which the dissemination is so great as to impair the chances of recovery. Refer the specimen to the laboratory immediately, and be prepared to operate then, or not later than the next day. The usual habit of reaming out the endometrium and sending it to the laboratory, and then letting the patient leave the hospital (particularly if the patient is a referred one), is bad, because you never get the patient back in time to do any good. Perhaps some member of the family gets ill when she goes home, and she says, "I will go back when my relative gets well." Or she decides to see another doctor, who has to go through the same diagnostic procedure.

We have been talking of the cancer age. There is a certain period in which a woman is more liable to cancer than at other times, but there is no time at which she is not liable to get it. I have seen cancer in women under thirty years of age in fifteen cases; and as early as twenty, in two. That is enough experience to enable me to say that in a woman there is no cancer age; and you must not say that a woman must be over, or in the neighborhood of, the menopause age. If you restrict cancer cases to that age, you will overlook a high per cent of them.

All the Doctor said about birth traumatism is correct as a preliminary factor, but not an absolutely essential one. I have seen three cases in women who had not borne children at all. So dissemination

of knowledge is the principal factor in bringing women to you early enough to do good. I have seen cases that are already cachectic, a burden to their friends and themselves, and looking forward to a delayed death. Immediate death would be preferable. They will be an offense to their family and friends in their last stage, which is approaching. If you see ten or twelve such cases, you are willing to go to any extreme to prevent other such cases.

Doctors and cancer study organizations are doing a wonderful work, and have reduced the cancer death rate over the registration area of the United States by about forty per cent and perhaps more. Anything done with the laity gets us farther than anything done with the profession. If the laywoman comes to you for a precancerous examination, you make up your diagnostic ability in proportion to the demands on you. The trained nurse is an aid in disseminating this knowledge. Many women who will hesitate to consult you about irregularity of the menopause will consult a nurse or a friend; if nurses are informed about the precancerous signs, they will rapidly disseminate the knowledge.

Another way is through women's clubs. In North Carolina, the Women's Club is a valuable agency. When we have an opportunity to speak before such a club, we take advantage of the occasion to say a few words in regard to cancer; and occasionally we are asked to speak on that subject, itself.

The last thing that I wish to say is a few words about radium. I know nothing about the physics of it, and very little about the technique of its application; but if it does nothing more, it relieves you from being compelled to pass sentence of death on the woman by saying that nothing can be done. I am glad to be able to pass this duty on to someone else. I know of nothing more depressing than to have to say to a woman, after her family physician has brought her to you for operation and you find a big, inoperable carcinoma of the cervix, with deep inguinal-gland involvement, "I cannot do anything for you; you must go home." All of us have tried palliative measures and escharotics, knowing that we could not do anything curative. All of us have operated and had terrible peritonitis develop afterwards, leaving the woman with a fistula as bad as the original cancer, to die slowly after dreadful suffering, and always soiled by her own secretion.

The radium expert offers us a chance to turn the case over to him. In the past three years, I have turned over five inoperable carcinomas to the radium man; and he has cut down the offensive discharge to a point where the patient was very comfortable and was no longer

an offense to society. One patient has been preserved to an immediate growing family for three years. When she dies, some of the younger children will be grown sufficiently not to need her direction. If he carries her on for two years longer, both the family and myself will be grateful to him. Two of the cases were made operable, whereas they were inoperable before, and I was able to do radical surgery. How long these patients will remain free from recurrence, I do not know. Three cases were absolutely inoperable, and could not be touched afterwards.

I am glad to be able to hold out some hope in these cases.

Dr. Ben F. Royal, Morehead City: Just a word to emphasize a well known fact. Cancer in all of its phases is distinctly surgical, yet the fate of any cancer case lies not so much in the hands of the surgeon as in the hands of the medical man who first sees the case.

There is probably a time when every cancer is curable, and there is certainly a later date when not one chance of cure remains. Naturally, then, success in treatment is based upon earliness of diagnosis.

The man in general practice should be called upon to look with surgical eyes upon such conditions as pigmented moles, lip cracks which fail to heal promptly, lumps in women's breasts, and fistulus tracts wherever situated. All these are potentially malignant.

The medical profession knows these things now, but a long stride forward will have been made when the laity comes to recognize these facts.

Two years ago I presented a paper before this Society on "The Cancer Problem," and as a means of acquainting the public with cancer facts I suggested designating one page of our State Health Bulletin as the "Cancer Page" and having some short, practical article published there in each issue. I am firmly convinced that such an article each month would in a short time reduce cancer mortality in North Carolina. I should like to emphasize this fact: surgery, in all its phases, is essential surgery. Cancer, in all its phases, is surgical; yet the fate of the surgical patient lies in the hands of the medical man in the first stage. There is a time when every one of the cases is curable; and another time, when it is not curable. The earlier you get these cases, the higher will be your percentage of cure, the greater the chances of cure for them. So you see that the fate of the surgical patient lies in the hands of the medical man, and not in the hands of the man in surgical practice.

Dr. A. J. Crowell, Charlotte: There was one statement in Dr. Highsmith's paper which, to me, seemed very significant—not new,

yet it is a truth that needs to be impressed upon us time after time; and that is the fact that ninety-seven per cent of the cases of carcinoma of the cervix are found in women who have borne children. This should be a warning to us to examine carefully for the cause of this greater frequency of cancer in the child-bearing than in women who have never borne a child. In all probability, these cases start from the laceration of the cervix. It is alright to do propaganda work among women's clubs but I think we should impress upon the family physician the importance of a careful investigation into the condition of the reproductive organs made frequently during the period of child-bearing, and of the prompt repair of the lascerated cervix. I am not a gynecologist but this occurs to me to be a wise procedure.

Dr. James B. Bullitt, Chapel Hill: I want to talk from the standpoint of the pathologist, and call attention to two points on which surgeons are apt to err. It is a very common thing for a pathologist to have a piece of tissue sent to him by a surgeon for diagnosis, with no statement as to the clinical history, or even as to what part of the body the tissue is from. I have had one surgeon give me, as a reason for failing to give a history of the case, that he wanted an unbiased report from the pathologist, and did not wish to misguide him. That would be the same as a general practitioner's putting his patient on the operating table without telling the surgeon anything but to go ahead and operate. Your pathologist needs a history of every case. For example, in a case of curettement, a piece of tissue is sent to the pathologist. Everyone knows that the mucosa in this region has quite a different appearance just before and just after menstruation; also there is a difference between that of a woman of the child-bearing age and that of an older woman. If you found in a curettement specimen from an older woman long dilated, tortuous glands, you would think that something was doing; but if you knew that the curettement had been made in a young woman just before the menstrual period, this condition might mean the normal gland, distended, as these glands are, before the menstruation begins.

One other point is that surgeons very frequently will send a piece of tissue to us without taking care to select the actual pathological portion of the material. Sometimes, too, an amputated breast is sent en masse, wrapped in gauze or put in a little alcohol, and reaches the pathologist several days later and in a poor state of preservation. It is impossible to make a good examination in such a case. A piece, not more than a quarter of an inch thick, should be cut through the portion supposed to be pathological, and this should be promptly

placed in eight or ten times its bulk of preserving fluid. Otherwise the post-mortem changes after removal may be such that it is impossible to make a diagnosis. If you select and fix your specimen properly you can get a better diagnosis from the pathologist.

A positive report means a great deal, but a negative report means little or nothing. The pathologist may not see the part in which the process is going on. Consequently, receiving a negative report has little weight, unless you are sure that the piece sent was cut through the diseased portion.

Dr. Highsmith, closing the discussion: I very much appreciate the discussion. In reference to Dr. Moore's remarks as to securing the specimens, experience must be the guide. Would say that it is impossible to always have a clear-cut opinion. There is great variation of opinion as to how and when to secure the specimen. For instance, you have a case come in with an indurated cervix, some discharge and slight irregularity in the period. You hardly think that it is malignant, my opinion being based on clinical experience, this is the kind of case in which I take a specimen and wait before doing a radical operation. On the other hand, if my clinical experience led me to believe the condition most likely malignant, I would not wait at all, but would do a radical operation, and then send the specimen, after operation, to a pathologist and get the report on it and thus check the clinical history.

Dr. Percy, who has done so much work on cancer is much opposed to getting a specimen; and, if you do get one, cold steel is not used to get it with, as it seems to cause the disease to develop more rapidly than it otherwise would. He uses the Percy cautery for this purpose.

Dr. Royal, when the paper was prepared I thought that there was going to be a symposium on cancer under the direction of Dr. J. W. Long; and this paper was prepared with that idea in view.

In regard to Dr. Bullitt's remarks relative to the way we secure this tissue, I would say that the same thing holds true with the pathologist, when trying to pass on a piece of tissue, as with the surgeon, when making his diagnosis. The surgeon who reads the history records without seeing the patient and depends entirely on the same is at a disadvantage. The surgeon wants to become really acquainted with the patient. There seems to be an affinity between himself and the patient, and regardless he makes up his mind as to the trouble. The pathologist should have with the report on the tissue, a clinical picture of the case; not that he is going to depend on same for the diagnosis, but it helps to strengthen his diagnosis. Then, if he makes a diagnosis

on that basis, it means more to the patient than if he had made the diagnosis without his help.

CANCER OF THE THYROID GLAND

Addison G. Brenizer, M. D., Charlotte

(Read by Title)

Balfour suggests that the frequency of cancer of the thyroid, as compared with benign enlargements of the gland, can only be estimated, since an unknown and probably a relatively small percentage of the so-called simple goiters seek medical and surgical advice. He states that of 6,359 cases of goiter, exclusive of the exophthalmic group, seen in the Mayo Clinic during the six years from Jan. 1, 1910 to Jan. 1, 1916, 103 cases were classified as cancer. The cancer incidence based on all patients with goiters (14,456) coming to the clinic from Jan. 1, 1910 to Aug. 1, 1918, is 1.19 per cent; 81½ per cent of the 103 patients were more than 40 years of age; 65 per cent were females and 35 per cent males. In almost every case there was a history of a long pre-existing goiter. As pointed out by Plummer, the disease has never, in the experience of the Mayo Clinic, developed in a distinctly and purely hyperplastic gland (exophthalmic goiter).

I have recognized and operated on but one cancer of the thyroid out of a total of 387 cases, of which 174 were of the hyperplastic, toxic type and the remaining 213 simple diffuse and nodular goiters and adenomata. Undoubtedly, I have removed adenomata which were cancerous or would have become cancerous, because the commonest malignant tumor of the thyroid is a carcinoma of the adenomatous type and because it is in the adenomata that cancerous degeneration most frequently takes place. If I have removed cancerous adenomata unknowingly, I have certainly done no harm, for I have removed adenoma and cancer at the same time and all my cases of adenomata are well today. The one case of recognized cancer was operated on six years ago under a very extensive operation of removal of all skin area, the sterno-mastoid muscle, gland dissection and resection of the entire length of the internal jugular vein. This case has had a recurrence about a year ago and has been treated with radium with doubtful result.

Though carcinomatous changes rarely, if ever, occur in a strictly hyperplastic or Basedowian thyroid, there is, however, occasionally seen a Basedowified cancer, that is, the occurence of hyperplastic changes and the syndrome of hyperthyroidism during the course of

thyroid malignancy. In the presence of the combination of malignant disease and the Graves syndrome, sometimes one phase, sometimes the other may become prominent. Occasionally, if the symptoms of exophthalmic goiter attain the ascendency, it is difficult to detect the presence of malignancy unless a portion of the tumor is examined under the microscope.

In 90 per cent of cases, malignant goiter developes in an already pre-existing goiter, consequently it is more frequently found in regions where goiter is endemic. A malignant tumor developing in a normal thyroid is rare; it is nearly always a tumor of connective tissue origin as sarcoma, endothelioma, etc. My paper would therefore be more accurately entitled "Malignant Goiter."

Malignant degeneration of goiter occurs mostly between the ages of forty and sixty years. To be sure, cancerous goiters have been found in younger people, even in children ten to twelve years old, but these cases are certainly not common.

Sarcoma is more frequently found in young people, carcinoma in old ones. Malignant goiter is proportionately more frequently found in women than in men, and occurs mostly at the menopause, hence the absolute necessity of removing any goiter which begins to grow at that time of life. Infectious diseases seem to have a certain etiological influence on the development of malignant tumors of the thyroid. It is not so infrequent for instance, to find that malignant degeneration follows an acute spell of grippe.

In advanced malignant goiters the skin is infiltrated, swollen, adherent to the deep layers and is sometimes livid red, while underneath the veins are dilated and even thrombosed. The diffuse malignant infiltration may extend to the neck muscles and other cervical organs. In the majority of cases the deformities of the larynx and trachea found in malignant goiter, as compression and deviation, existed previously and were started by the goiter itself. Certainly, such deformations may have become more accentuated since the malignant degenerations of the goiter occured, but they are not typical of malignancy. The only feature that is characteristic of malignancy is the invasion of the tracheal walls by the tumor; in advanced cases it may perforate the trachea.

Compression of the esophagus may become so marked as to reduce considerably the esophageal canal and make swallowing difficult or impossible.

The carotid sheath is usually found adherent to and choked by the tumor. In advanced stages the malignant infiltration may involve the large vessels, erode them and cause fatal hemorrhage, as in the cases

reported by Lehert, Oser and Coulon. Such termination is, however, exceedingly rare. Less resistant than the arteries, the veins are frequently invaded and it is not infrequent to find them perforated and filled with cancerous masses. In my case the internal jugular vein was adhered intimately to the mass and the whole length in the neck had to be resected.

The recurrent laryngeal, the vagus and sympathetic nerves may become so imbedded in the tumor that their removal with the tumor is rendered necessary. Their removal, however, does not materially influence the immediate post-operative prognosis, especially when resection is unilateral.

In carcinoma the involvement of the lymph nodes takes place early. The ones first affected are the cervical, found along the carotid sheath; only later the mediastinal glands become involved.

The development of cancer may be acute, sub-acute or latent. In the acute or fulminating form the development of the tumor is extremely rapid. In three or four weeks it may reach such a development as to cause alarming symptoms of suffocation, since the tissues soon become caught by the diffuse, malignant infiltration. This form of malignant tumor occurs in young people and is often mistaken for acute thyroiditis, or strumitis. It is often impossible to differentiate it clinically from phlegmonous woody thyroiditis.

In the latent form the gland is hardly modified in form, size and consistency, but numerous metastases are found in the lungs, bones, etc. The thyroid origin of such metastases is usually discovered at autopsy or when a microscopic examination happens to be made from a lump removed at operation. This form of malignancy is rare.

Usually the development of malignant tumor follows the sub-acute type. It occurs in patients who previously have had goiter, which may have been stationary for years. Some days, without any apparent cause, it begins to enlarge and to grow with comparative rapidity. It soon interferes with respiration, the voice becomes rough, harsh and rapidly bitonal; deglutition is slightly difficult, shooting pains especially toward the ear and along the cervical and brachial plexuses are complained of. Little by little the limits of the goiter are less sharply outlined, the tumor becomes adherent to the muscles and other neighboring tissues, and grows downward toward the mediastinal space. The goiter loses its previous softness and becomes hard—this is a symptom of great diagnostical value.

Gradually respiration becomes more difficult, a barking cough is frequent and paroxysmal choking spells soon dominate the scene.

On the anterior and superior portion of the thorax, when the malignant tumor has already progressed beyond a certain degree, there is a collateral circulation, showing that the return flow of blood toward the heart is impaired. At the same time edema of that entire region may be present and especially when the superior vena cava has been involved. Sometimes one may run across a cancer of the thyroid in which pulsations synchronous with the heart beat are distinctly perceived, so much so that one thinks of an aneurysm. This is due to the fact that the veins of the thyroid, being thrombosed to a more or less extent, the return flow of blood is greatly impaired and the impact of each new arterial arrival of blood is strongly transmitted through the congested and solid tumor. This form of cancer is called aneurysmal cancer.

Dysphagia is among the first symptoms to betray the presence of cancer of the thyroid. Not infrequently this compression is accompanied by spasm of the esophageal musculature. In such conditions, the swallowing of liquids especially when cold, is as difficult as the deglutition of solid food.

Huskinesss or loss of voice from compression of the recurrent laryngeal nerve is frequently seen. Sometimes patients complain of intense neuralgia in the arm, fingers and occipital region on the side corresponding to the tumor. These shooting pains are due to compression of the cervical and brachial plexuses.

Metastases must be carefully looked for; they may be found or at least suspected, especially in the skeleton or lungs.

Symptoms of thyroid insufficiency in connection with malignant degeneration of the thyroid are not so frequent as one would expect. The reason for this is mostly because the entire gland is seldom involved. There remains nearly always enough gland to meet the physiological requirements. And then too, we know that malignant cells of the thyroid have not lost their physiological properties: they are still capable of normal function.

Sarcoma as a rule grows more rapidly, reaches larger dimensions, is softer and has a smoother surface than carcinoma. In sarcoma the skin is less adherent and its limits are not quite as diffuse as in carcinoma.

Metastases of malignant goiter, whether of epithelial or connective tissue origin, may take place through the lymphatics or through the blood vessels. The general formula applied to malignant tumors, when speaking about their mode of dissemination: "Hematogenous route for sarcomata, lymphatic route for carcinomata," does not hold good for the thyroid gland.

Metastases of epithelial malignant goiters occur more frequently in bones than metastases of sarcomata. In both varieties, metastases in the lungs are frequent. These metastases show marked predilection first of all for the skull, then comes the pelvis, the sternum, femur, clavicle, lower jaw and the shoulder blade; they are not, as a rule, multiple.

One peculiarity of these metastases is their ability to revert to the normal type of thyroid tissue; in other words, if a microscopical examination of such metastases is made the malignant character of the tumor may have disappeared entirely, or have diminished to such an extent that the microscopic picture is mostly one of normal glandular structure. The faculty of these cells not only to shape themselves into normal alveoli, but also to secrete colloid, raises one of the most interesting problems ontology and teleology. How is it that malignant cells which cannot be differentiated from normal ones will be carried away by the blood stream and will not only grow upon a strange land but will also not be deprived of their physiological action, which is colloid secretion? A similar feature does not occur in cancerous metastases of other organs. Metastases of the breast do not secrete milk, nor does a metastasis of the liver secrete bile nor a metastasis from the cancerous kidney secrete urine. The different varieties of carcinomata and sarcomata of the thyroid, their microscopical structure, their etiology and the speculation as to the various cells from which they spring, all this, while interesting to the pathologist, in reality, helps very little in the diagnosis and treatment of malignancy. Let it suffice to say that, by far the commonest malignant tumor of the thyroid is a carcinoma of the adenomatous type.

The diagnosis of an early case of malignancy of the thyroid—the period when surgery is most productive of good—is extremely difficult. When the diagnosis is quite evident we are dealing with an advanced and practically inoperable case.

Why is it that cancer of the thyroid has so long been considered beyond surgical reach? Simply because these cases are operated on too late, hence disastrous immediate results; hence high mortality. We have learned in late years that cancer can be fought with some chances of success if it is operated early, namely, before the capsule of the gland has become involved, before veins have become thrombosed and before the lymphatic glands have become infiltrated. When the neoplasm is so encapsulated that it has not spread outside the capsule, and consequently, has not involved the neighboring tissues, the chances for a happy outcome are good; at least, we can hope that the patient will enjoy a comfortable and peaceful life for a year or two

before any relapse occurs. Even this gain, though short, is it not worth our utmost efforts? Life is not so long after all that we should squander it lavishly!

We can properly say that the outcome of a cancer case lies within the power, not of the surgeon, but of the family physician. He is the one who sees these cases first; he is the one to treat them for months and months for simple goiter, before he realizes that something very serious is undermining his patient. He is the one who should consequently be educated to know such conditions, to differentiate them and to make a very quick decision when once his doubts have been aroused.

Every physician should always have it in mind that there is a possibility of a cancer in connection with any tumor. This possibility should haunt his brain in every case: he should become a "cancero-maniac." The satisfied and dangerous optimism which is too often found, should be discarded and replaced by an alarming pessimism. In this state of mind the physician will be able to catch the significance of any slight physical change in the tumor, the meaning of any apparently slight and insignificant symptom. Too often, indeed, these little prodromal symptoms are not paid enough attention, yet they exist. It is for us to train our senses to perceive them and to utilize them for early diagnosis. Cancer, as a rule, does not appear like a thunderbolt out of a clear sky without some premonitory symptoms. To be sure, the early development of a cancer is sometimes insidious; and in that case we are powerless. Then too, the patient is too often guilty of an unpardonable negligence against which he should have been educated.

Cancer of the thyroid gland is one of the few conditions in which it is not necessary to wait until diagnosis is certain; suspicion is enough to warrant surgical intervention. When we have to deal with a patient of middle age, whose goiter without any apparent reason begins to grow, to cause some shooting pains, to become hard, especially if this patient is a woman about the time of menapause, why wait until the entire cervical region has become as hard and rigid as a board, until the patient is choking to death, in other words, why wait until it is too late to operate? In a great many such cases an early operation, even when the diagnosis of cancer is still uncertain will strike the neoplasm in its embryo, so to speak, and cure the patient. Even if the operation should be performed for a condition, which, later on, proves not to be malignant, no harm will be done, as the patient will be relieved of her goiter and may be saved from a future malignant degeneration of that tumor. Expectation and procrastination can only

be fatal. They allow the newly starting neoplasm to reach a stage, beyond which, with all hope gone, the grave is the only comfort.

THE CYSTOSCOPE IN THE FIELD OF UROLOGY

W. C. Stirling, M. D.

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(Read by Title)

In 1807 Bozzini of Frankfort devised a metal tube reflector and candle for bladder examination. Various other men worked along the same line until 1877 when Nitze first applied an incandescent light to a real cystoscope. Since that time various improvements and refinements have been made on the cystoscope, which now permits various examinations and operations to be made on the genito-urinary tract.

The technique of cystoscopy with which every urologist is familiar is gained first by having a thorough knowledge of the principles on which the indirect or direct cystoscope is constructed as well as knowing the anatomy and normal appearance of the interior of the bladder. This is gained by constant practice in seeing the normal as well as the pathological picture of the interior of the bladder. Having mastered these details, cystoscopy and ureteral catheterization becomes very easy and only requires a very short time except in rare cases.

In pathological conditions of the bladder one is enabled to see and determine the extent of the condition. Vesical calculi can be accurately diagnosed as to size, number, location, shape, mobility and whether situated in a diverticulum or not, the advisability of lithopaxy and removal without a cystotomy. The urologist should be familiar with the various types of calculus seen in the bladder and be able to recognize the more common ones, such as the phosphatic, uric acid and oxylate stones. The x-ray fails to reveal the presence of bladder stones in quite a large number of cases, so that a negative roentgenogram does not rule out a stone, whereas the cystoscope will show it in all cases except where it is situated in a diverticulum or in conditions which will not permit the cystoscope being introduced such as hypertrophy of the prostate, urethral stricture, etc.

Bladder tumors can be readily diagnosed, the type determined and advisability of fulguration, radium therapy or open operation arrived at. The records show a large percentage of secondary implantation of excised tumors in the incision so that in benign tumors of the bladder fulguration is indicated. In some malignant conditions radium

can be introduced through a specially devised cystoscope and applied with success to many of these tumors. Radium needles have also been used in some cases inoperable.

All cases of prostatic hypertrophy should be cystoscoped prior to operation, if not contra-indicated, and the various tests be made, such as thalein excretion, amount of the residual urine, presence or absence of a diverticulum or calculus determined, as well as the size, shape of the prostate, and whether a medium bar enlargement is present. Freyer of London says the only contra-indications to cystoscopy are impending uremia, great thirst, rapid pulse and profound intoxication.

With the cystoscope one can diagnose such conditions as leucoplakia, malakplakia, vesical TB or the essential ulcer as described by Kretchmer. The condition of the ureteral orifices can be seen and any pathology such as blood issuing from the mouth of the ureter, ulceration around the mouth of the ureter, small calculi projecting from the orifice or any abnormality of the shape of the ureteral orifice seen. It has been the author's experience to see several cases of double ureters on one side. By means of the wax bulb catheter one is often enabled to make a diagnosis of ureteral calculus as well as a stricture. Again the x-ray may fail to show a small uric acid stone which usually would be found upon passing a catheter to the kidney. By passing a catheter up to the stone and injecting sterile oil, apothesine or papavarine, a stone can be made to pass in a large percentage of cases where the x-ray shows it to be two cmm. in diameter or less. An open operation is not justified until this has been tried several times. The reports of various men using this method bears out this statement. Since the non toxicity of sodium bromide has been worked out by Weld as a medium in pyelography a routine pyelogram can be made in all suspicious cases and where a shadow shows in the upper right quadrant a ureteral calculus can be differentiated from cholelithiasis, pleboliths, abnormalities of the spinal column, etc., as well as outlining the renal pelvis in suspected tuberculous caseation, hydronephrosis and nephroptosis.

Braasch of the Mayo Clinic places great confidence in pyelography and arrives at most of his diagnoses of tuberculous kidney by the pyelogram together with the bladder findings and centrifuged sediment stain, placing very little if any confidence in guinea pig inoculation which he says at best are unreliable. He describes three types of TB kidney and can usually define these various types by the aid of a pyelogram.

In surgical conditions of the kidney the cystoscope with ureteral catheterization is indispensable, combined with pyelogram and the

function tests. Together with the history and physical findings we are able to determine the presence of a unilateral or bilateral infection whether both kidneys are functionating or not, and whether one kidney can carry on the work of both should a nephrectomy be indicated. By means of the excretion and retention tests the total as well as the separate function of the kidneys can be arrived at and the advisability of an operation determined.

Recent study by Bumpus and Meisser of the Mayo Clinic as to the cause of kidney infections has changed the general conception of these infections, more especially pyelonephritis. Infections of the pelvis and parenchyma of the kidney are often due to focal infections especially the teeth and tonsils which harbor the infecting organisms, which they have found to be certain strains of the streptococcus and in some cases staphlococcus from infected tonsils. In cases of pyelonephritis coming in for treatment they carefully eliminate all foci of infection paying particular attention to the teeth. They have injected pus from one of these foci into a guinea pig or rabbit and have produced the same pathology in the kidney alone and then reinjected pus from this kidney into a second animal with the same results and then injected pus from the second specimen into a third and fourth one and had the infection appear only in the kidney the other organs being negative. This has definitely proven that certain strains of the coccus group have a selective action, as Rosenow has proven with the action of streptococcus on the appendix. Simple lavage of the kidney pelvis will not permanently cure these cases because the source of the trouble is not in the kidneys but in one of the sinuses, teeth or tonsils. These must be eliminated to prevent a recurrence of the condition. In the last thirty cases of pyelonephritis coming to the Lawrence Clinic for treatment we have paid special attention to the source of infection and have found that the majority of the cases revealed pus pockets in the teeth with two giving definite symptoms of tonsilitis. In any suspected infection with elevation of temperature and pain occurring in the abdomen pyelonephritis must be ruled out, as the report of a thousand autopsies made in a hospital center in Beaune, France, twenty per cent of the cases showed pyelonephritis which had not been recognized before death. This in itself should keep us constantly on the lookout for these infections. In such conditions as twisted ovarian pedicle, appendicitis, salpingitis, cholecystitis have been frequently confused with pyelonephritis and even operation performed on the strength of such diagnosis which failed to cure the patient and upon passage of a ureteral catheter the real trouble was found to be in the kidney. Caulk of St. Louis says the mere passage

of a ureteral catheter will clear up a large number of these infections, believing it to be due to a partially occluded ureter.

SUMMARY

1. Cystoscopy is acquired only after gaining a thorough knowledge of the Genito-Urinary tract.

2. Such bladder condition as tumor, calculus, diverticulum, prostatic hypertrophy, tabetic atony of the internal sphincter can be readily diagnosed with a cystoscope.

3. In surgical conditions of the kidney cystoscopy combined with ureteral catheterization and the retention and excretion tests is invaluable in arriving at a diagnosis.

4. In tuberculosis of the kidney the determination of bilateral involvement can be made and whether the other kidney can carry on the function should nephrectomy be indicated.

5. In treating pyelonephritis the cystoscope with ureteral catheterization and renal lavage is indispensable after eliminating any possible focus in the teeth or tonsils.

REPORT OF CASES OF RUPTURED ULCER OF DUODENUM AND STOMACH

J. A. Williams, B. S., M. D., F. A. C. S., *and* J. W. Tankersley, M. D., F. A. C. S., Greensboro

(Read by Title)

In reporting these cases I wish to bring out a free discussion whereby we may all be benefited. When I first saw a case of ruptured ulcer ten years ago there was so little literature on the subject that I feel free to say I felt very much handicapped as to the diagnosis.

The diagnosis of simple non-perforating ulcer of the stomach or duodenum is not a simple process even with the aid of x-ray. Few of you I venture to say but that have operated for ulcer on the diagnosis of the x-ray and failed to find them. The problem of ruptured ulcers should not present such a baffling condition today but only too frequently it is not made. If a typical history of ulcer does not always present an ulcer at operation a typical history can and will force our conclusions of a rupture in cases of violent pain in the upper abdomen, not relieved by the ordinary doses of morphia, and with a board like rigidity of the abdominal muscles. Therefore we should pay special attention to the previous history with the further point that the pain

comes on usually when the stomach is empty. Deaver has said, in an article recently on this subject that 20% of ruptured ulcers gave no history previous to the rupture. It is granted that possibly many cases of ulcer will heal under diet and rest of the stomach or Sippy's treatment but the experience of Wilensky of N. Y. is that 40% of the cured cases came back later to the surgeon for operation. A rupture is an indication of the inability of the tissues to overcome the pathology, a lack of healing power.

REPORT OF CASES

Case 1.—1909. Mr. M. A young man 24 years old, who had indigestion for several years, though in apparent good health, was on his way from his office to lunch. After walking for three blocks, he was suddenly taken with a violent pain in abdomen and fell in the street. He was carried home and his family physician called and he gave him hypo. morphine ¼ gr. I was called in two hours later and found him in bed with abdomen rigid, pulse 120, temp. normal. He had at that time recovered from shock. I advised an operation for ruptured appendix. He was removed to hospital and two hours later abdomen opened by right rectus incision. The abdominal cavity was filled with serious fluid, purulent in character, along flabby appendix was removed and the abdomen dried with sponges. Before closing, I inspected the duodenum and found a ruptured ulcer just out side the cap on the duodenum side. I closed over ulcer with two layers of sutures, then closed abdomen, drains being inserted at both ends of incision. For four or five days he was vomiting and nauseated and run a temp. from 99 to 101. The drainage gradually removed so that all was removed in ten days. In four days liquid diet was begun and in six days soft diet. He made an uneventful recovery and left hospital in three weeks, he is now in good health and gained considerably in weight.

Case 2.—1917. Mr. G. Age 34. Called on his physician for trouble with indigestion, this physician having treated him two years before for ulcer. He was prescribed for and walked across the street about six P. M. to a drug store to have same filled. He fell at the drug store door, with violent pain in the abdomen. The same physician was called and gave hypo. morphine ¼ gr. and took him to the hospital. I was called two hours later, found he had recovered from first shock. His abdomen was absolutely rigid, temp. normal, pulse 130. I diagnosed ruptured ulcer of duodenum and advised operation. I operated on him one hour later, right rectus incision and found abdomen filled with fluid, sero-purulent in character. There was ruptured ulcer on the duodenal side of cap, leaking. This was closed with two sets of sutures and a Gastro-enterostomy done, drainage inserted at point of ulcer. Abdomen was closed, liquid diet given in forty-eight hours and water after twenty-four hours. Drainage gradually withdrawn until at the end of ten days all was removed. He made an uneventful recovery and left the hospital in eighteen days. He is now in good health and doing his usual work as R. R. conductor.

Case 3.—Mr. C. Age 27. Was passing through town and came in on a late train. About eleven o'clock, not having had breakfast, he went to a cafe to get lunch before catching another train. While sitting waiting for his meal, his order

having been given, he was suddenly taken with violent pain in abdomen and his friends took him to the hospital and called me to see him. He was in profound shock, abdomen absolutely rigid all over. Ruptured ulcer was diagnosed, he was given hypo. morphine ½ gr. and one hour later was operated on. Quite a lot of fluid was found and an ulcer of the stomach leaking just inside the cap. This was closed over with three sets of sutures, drains inserted and abdomen closed. He made an uneventful recovery, liquid diet was given in forty-eight hours, soft in four days, water freely after twenty-four hours. He is well now and in good health, as I saw him only a few weeks ago.

Case 4.—1920. Mrs. P. Age 27 years. Married, two children, was brought into the hospital, having been taken seventy-two hours before with violent pain just before supper. Abdomen rigid, pulse 130, temp. 102. Abdomen was opened high, right rectus incision, as ruptured ulcer was diagnosed. Abdomen was full of sero-purulent fluid, also pelvis. Ulcer of stomach was found just to the inner-side of cap. This was closed with two sets of sutures, drainage inserted and also stab wound above pubes and pelvis drained. She did very well for ten days, running a little temp., 99 to 101, then had a chill one night and temp. jumped to 102 had pain in right lower chest two days later. Under local anæsthesia the chest was opened and about one pint of pus was removed from plural cavity and two rubber tubes left in for drainage. Four days later she developed septic pneumonia and died in twenty-four hours.

Case 5.—1920. Mr. R. Age 28 years. Married. He was in the army and told he had an ulcer. He came home in 1918 and attended a crop and in Sept., 1919 had some indigestion, was taken before supper with violent pain in abdomen. The next morning he had his family physician and he gave him a hypo. morphine ¼ gr. and sent him to hospital. I was called in to see him and diagnosed ruptured ulcer and operated about noon. Found ruptured ulcer of duodenum at the pylorus, leaking and abdomen full of fluid. Ulcer was closed with two sets of sutures and drainage inserted. This was eighteen hours after rupture. Began diet in forty-eight hours, soft in seventy-two hours. He ran a temp. from 99 to 100 about two weeks and then had a chill, temp. jumped to 104. The next day I opened the old wound down the line of drainage to the ulcer, under oxygen-gas, thinking I would find abscess either under the liver at the seat of ulcer or above the liver but this part of abdomen was clean. So with two drains the wound was closed, his temp. came down to normal and on the third day had another chill and complained of pain in lower right chest. I had several medical men to see him and they diagnosed pneumonia in the lower right lung. He ran an irregular temp. from 99 to 103 for five days, then I opened the right chest and drained an abscess between the right plura and the diaphragm, the plural cavity comparatively free. He developed septic pneumonia and died two days later.

Case 6.—Mrs. L. S. Age about 30. Entered hospital June 28th, 1918, with history of sudden violent pain in the upper abdomen the night before. Come on late in the night. Thought she had colic and after several hours succeeded in getting her doctor. At the time she had temp. of 99.5 and pulse about 100. Mustard plasters and hypo. of morphine failed to relieve pain. Next morning she was brought to the hospital. Patient had the appearance of profound shock, anxious look, tenderness over entire abdomen with no special area, possibly slightly so over

the epigastrium. Temp. 101 and pulse 120. Diagnosis of gall bladder trouble was made with possibility of duodenal ulcer. On opening the abdomen through right rectus incision high up the gall bladder was found adherent to the stomach and duodenum and transverse colon. Abdomen full of chyme fluid with congested peritoneum especially over the right side of abdomen. Around the duodenum there was considerable inflammatory tissue and on freeing it so that duodenum could be inspected a small ruptured area was easily seen about 1″ external to the pylorus. This was sewed over and post gastro-jejunostomy done. Appendix was also removed. Abdomen drained and patient made slow but uneventful recovery.

Case 7.—P. D. White. Male. Age 32. Previous history and x-ray diagnosis indicated ulcer of the stomach about pylorus one year ago. Under medicinal treatment, with diet, he improved and for last two months had been apparently entirely cured. The morning of March 23, 1921, was taken with violent pain in the upper abdomen, nausea, but very little vomiting. His family doctor was called and under ice bag and hypo. of ¾ gr. morphia his pain was made bearable. His father, who is a physician was called from a nearby town. This necessitated a delay of a day. That night he was brought to the hospital, arriving there 15 hours after the rupture. Diagnosis of ruptured duodenal ulcer was made and abdomen opened. Abdomen was full of fluid and pus, especially on the right side. Pelvis full of pus. Just external to pylorus there was a ruptured ulcer with a broad indurated base, through which stomach and duodenal contents were escaping. This was inverted, tag of omentum sewed over area and rubber tube sewed to this area with omentum wrapped around the tube. Upper abdomen and pelvis freely drained and wound between sewed up. Patient was delirious and had a rather stormy time for a week then begun to clear up. Made an uneventful recovery following this.

There are four factors in summing up, from my experience of symptoms and prognosis:

1. There is a sudden and violent attack of pain, while stomach is empty in all cases.

2. There is absolutely about the most rigid abdomen you will find from any cause, extending from the ensiform cartilage to the pubes, hard like a board, much more so than in cases of ruptured appendix.

3. There is more profound shock in these cases.

4. There is always danger in these upper abdominal cases, causing infection through the deep glands under the liver, diaphragm or right pleura and lung, these parts becoming involved.

GYNECOLOGY AND OBSTETRICS

Dr. Moir S. Martin, Mt. Airy, Chairman

THE PYELITIS OF PREGNANCY AND THE PUERPERIUM

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There is but little variation in the clinical picture resulting from renal infection in the pregnant and non-pregnant female, or in the puerperal and the non-puerperal state. The sooner we learn to recognize that infection under these conditions does not differ from ordinary renal infections the better will be our end results.

Pyelitis occurring during pregnancy only differs from the same infection occurring during the puerperium in a few minor details. Namely: First—The period at which the infection manifests itself clinically. Second—That in pyelitis of the puerperium. One must consider infections of the internal genitalia, especially, those involving the veins of the broad ligaments, in the differential diagnoses. The two conditions present so many features in common that we will consider them together.

Etiology:—Pyelitis of pregnancy may be the persistence of a condition which may have started in childhood. That a pyelitis of the puerperium is simply a lighting up of a latent condition existing during pregnancy does not require much argument.

The colon bacillus is responsible for 90% of the cases, the remaining 10% is due to invasion by the ordinary pyogenic organism, chiefly the staphylococcus.

Bacteriemia is found in 15% of pregnant women. The ureters, particularly the right have been found dilated and filled with urine in 2/3 of the gravidæ coming to autopsy. This is due to torsion, stretching, or kinking of the ureters. (a) During pregnancy the kidneys being organs of elimination are called upon to eliminate the toxins of the fetus as well as of the mother. (b) The skin is less active than normal, rendering little assistance. (c) The diminished activity of the woman leads to less activity in the organs of metabolism, poor digestion, and sluggishness of the bowels, thus increasing the amount of toxic material thrown upon the kidneys to eliminate. (d) The increase of toxic products passing through the kidneys causes kidney irritation which leads to congestion, thus, producing an important predisposing factor to infection. (e) The lowered resistance of the patient allows focal infection to become more active. Co-existing with the foregoing more bacteria are thrown into the blood stream and the

already congested kidneys are fertile soils for infection. The organisms reach the renal pelvis by one or more of the following routes: (1) The hematogenous or descending. The organisms enter the general circulation from the (a) tonsils, (b) teeth, (c) intestines and are excreted in the kidney pelvis after passing through the blood vessels of the kidneys.

(2) The organisms enter the rich lymphatic network of the internal genitalia of the pregnant or puerperal woman and then ascend by way of the lymphatics of the submucus or periureteral coats of the ureters to the renal pelvis. (3) The organisms ascend to the renal pelvis along the mucous membrane of the ureters from the bladder and urethra. (4) From the colon directly to the kidneys by way of lymphatics passing directly between these two structures.

It is impossible to tell with accuracy which route is most frequently followed, but, it is believed that a large per cent of cases are due to invasion through the blood stream.

SYMPTOMS

Clinically one encounters three types: First, the mild; second, the moderately severe; third, the very severe. In the mild type there may be absolutely no symptoms, our attention being directed to the kidney infection by the persistent pyuria, or bacteriemia. Understand there is often no sharp line of demarcation between these types. A renal infection which has at the onset presented the mildest possible symptoms may suddenly change to a severe sepsis.

There are two findings which vary greatly in individual cases, these are: First, symptoms referred to the bladder. Second, degree of evidence of infection as found in examination of urine. One frequently encounters cases of renal infection in which symptoms such as increased frequency of urination, painful urination, etc., are but little complained of. We often see cases of pyelitis of pregnancy and the puerperium in which bladder disturbances attract our attention at once, while in others they are entirely lacking.

A relatively clear urine does not exclude the possibility of infection of the upper urinary tract. Ordinary microscopic examination will often give no clue as to the presence of such an infection. There may be absence of pus for days, or the urine may be cloudy from the presence of a large number of bacteria. It is only by repeated study of catheterized specimen of urine from the bladder, or better by staining the sediments after prolonged centrifugalization of the urines obtained from each kidney by ureteral catheterization that a positive diagnosis can be made.

In the mild form of the infection backache, or pain and tenderness over a single kidney, or referred to the lower abdomen may be the only symptoms which attract our attention.

In the moderately severe cases the pain and the tenderness over one or both kidneys may be most marked or the first manifestation may simulate other intra-abdominal affections. We must consider in the differential diagnoses:

First, salpingitis: second, appendicitis; third, twisting of the pedicle of an ovarian cyst or dermoid or an acute cholecystitis. The fever is usually of the intermittent type, but may be continuous. Recurrence of the high temperature may or may not be preceded by a chill.

In the puerperium the first thought is that an infection of the uterus and adjacent structures has occurred, but this can be ruled out in the majority of cases. In the very severe form symptoms that direct our attention to the kidneys retire more and more to the background, the clinical picture becoming more and more that of a severe bacteriemia without localizing symptoms, unless a pyonephrosis or a perinephritic abscess develops.

DIAGNOSIS

The symptoms plus the urine findings will usually suffice. The first manifestation of pyelitis may deceptively simulate other intra-abdominal conditions and the difficulty in making the differential diagnosis is still further enhanced by the widely varying course in different cases.

Cystoscopy and ureteral catheterization is conclusive and properly done is harmless even near term.

TREATMENT

I will divide the treatment under three heads: First, the expectant treatment—by this I mean absolute rest in bed, drinking large quantities of water, a bland diet and the administration of urinary antiseptics in as large doses as the patient will tolerate; plus the administration of an autogenous or a mixed vaccine. Second, Caulk and others have proved that the provision of free drainage of the infected kidney pelvis through the ureteral catheters alone will cure all but those cases where the renal pelvis and ureters are dilated as the result of long standing infections. Third, lavage of the kidney pelvis using 1-5,000 or 1-1,000 solution of silver nitrate as an irrigation and leave 5 to 10 cc. of a 1% solution in situ and then withdraw the catheter.

We have had very gratifying results with mercuro-chrome 220 used in the same strength as the silver nitrate. A single treatment may

suffice to produce a symptomatic cure, but the treatment should be continued until a bacteriologic cure has been produced. If the symptoms of severe sepsis continue in spite of pelvic lavage, do not fail to look for some obstruction in the ureter, or for a possible complication in the form of a pyonephrosis or perinephric or periureteral abscess. Do not terminate pregnancy until these methods of treatment have been given a thorough trial.

I will now report three illustrative cases.

REPORT OF CASES

CASE 1.—Mrs. L. A. C., age 28, admitted December 20, 1920, complaining of pain in lower abdomen, chills and chilly sensations. Has had 4 children and 4 pregnancies; labors normal.

Present Illness:—10 days ago was taken with pain in both sides of lower abdomen, chill, aching and elevation in temperature. Temperature is normal in A. M. and 103 to 104 in P. M.. Is constipated. Kidneys acting normally, no bladder symptoms.

Physical Examination:—Is negative except for marked tenderness of lower portion of abdomen, slight rigidity of both recti muscles, slight tenderness over kidneys. Vaginal: Bilateral laceration of cervix. Fundus of uterus two finger's breadth below umbilicus, movable but not freely so. Has yellowish vaginal discharge; smear from this shows streptococci. Leukocytis 12,200. Catheterized specimen of urine showed L. C. albumin and a few pus cells. On day after admission she had a chill and temperature rose to 104. Blood at this time was negative for malaria. Cystoscopy and ureteral catheterization was decided upon. Both ureteral orifices were reddened and swollen, but otherwise the bladder was normal. The urine from the right kidney was slightly turbid and acid in reaction showed a faint trace of albumin with a few pus cells. Pthalein appearance following intravenous injection, 6 minutes 10% first 15 minutes. Left, turbid acid, albumin, L. C. Microscopic: Large number of pus cells. Pthalein appearance 8 minutes, first 15 min. 10%. Cultures showed colon bacillus infection, bilateral. After draining once through the ureteral catheters the temperature dropped to normal and has remained there ever since, only had two such treatments. Patient continues in good health.

CASE 2.—Mrs. F. F. L., age 22, admitted complaining of pain and tenderness in neighborhood of McBurney's point.

Family History:—Negative.

Past History:—Had an appendicial abscess 9 years ago, which was drained without removing appendix. Menses last seen 5 months ago. Has been constipated.

Present Illness:—For past 2 months has had occasional attacks of pain and distress in right side. 3 days ago this pain suddenly became very severe, is nauseated and vomits occasionally.

Physical Examination:—Usual signs of a 5 months' pregnancy. There is tenderness and rigidity throughout entire right side of abdomen, but not localized. This case was admitted for an appendectomy, but we decided to study her case for a few days and treat her along expectant plans. The day following admission,

temperature was 100, pulse 100, respiration 22, W. B. C. 17,000. Catheterized specimen from bladder showed much pus. Careful palpitation of right kidney showed tenderness on deep pressure and slight enlargement. Cystoscopy was decided upon and performed 6-1-'20. Except for a reddened and swollen right ureter orifice the bladder was normal. The urine from the left kidney was clear, that from the right when centrifuged showed a sediment that contained numerous large pus cells, staining of this sediment revealed a large number of gram neg. organisms which culture revealed to be a strain of the colon bacillus. Two days following draining of kidney pelvis patient's temperature was normal. In addition to draining the kidney pelvis we gave 60 grs. urotorpin with 120 grs. benzoic acid daily together with large quantities of water and free purgation. Patient improved for about 2 weeks, when she started vomiting to such an extent we were forced to discontinue everything by mouth for a few days. 6-6-'20 we again drained the right kidney through the ureteral catheter. The temperature gradually subsided, but her nausea and vomiting continued for about 10 days longer. On 7-'20 she was discharged in good condition. October 6, she was delivered of a full term male child. Patient continues in good condition and child is breast fed.

Case 3.—Mrs. E. G. H. White female, age 18 years, was admitted September 8, 1920, complaining of severe pain in lower abdomen, accompanied by chills and fever.

Family History:—Negative.

Past History:—Has never been robust. Married for one year and has a child 6 weeks of age, labor normal. Her pregnancy was uneventful.

Present Illness:—Chief complaint, pain in lower abdomen, began yesterday. Patient was suddenly taken with a chill followed by rapid elevation in temperature. On admission temperature 103, pulse 100, respiration 22. She has been well since birth of child until yesterday.

Physical Examination:—Is negative except for tenderness in neighborhood of both kidneys on deep pressure. Laboratory Examination: W. B. C. 15,000. Catheterized specimen from bladder showed a few leukocytes. Patient was put to bed and an ice bag applied to abdomen. We decided to await developments of case. The next day the temperature was normal and she was feeling good, the following day she had a chill followed by rapid elevation of temperature and blood was positive for malaria. Anti-malarial treatment was begun, but patient grew worse, and had a convulsion. Another catheterized specimen from bladder revealed much pus and albumin. Cystoscopy was decided upon and carried out with following results: Urine from both kidneys contained pus and cultures showed staphylococci. Pelvic lavage of kidneys was begun with 1-1,000 mercurochrome following each lavage we left 10 cc. of 1% solution mercurochrome 220 in each kidney pelvis. We did this twice weekly at the same time giving 60 grs. urotropin and 120 grs. benzoic acid daily by mouth. After first treatment temperature remained normal 7 days.

Patient had a stormy convalescence, but finally, October 3d, three weeks and four days after admission, temperature became normal and remained there. Cultures from kidney the day before she left the hospital were negative. Except for one attack of severe pain in right side, 10-28-'20, patient has remained well since she was discharged.

THE USE OF GLUCOSE INTRAVENOUSLY IN CERTAIN POST-OPERATIVE CONDITIONS

A. deT. Valk, M. D., Winston-Salem

(Read by Title)

A reasonable amount of work has been done on the use of glucose intravenously in various medical clinics and its value appreciated, particularly its use in febrile condition with especial reference to pneumonias.

From its physiological action there is no question why it should not have a place in the treatment of certain post-operative conditions which has been brought forth by several writers. Not only from the standpoint of promoting diuresis is it useful but most essentially from the standpoint of combating acidosis.

Crile has advocated the use of glucose along with soda bicarbonate and salt solution per rectum, this having the advantage over simple salt solution in the fact that it contains a substance that actually possesses some food value as well as the alkali effect of the bicarbonate of soda. When tolerated well by the patient this no doubt increases elimination and prevents acidosis to a certain extent.

Farrar in a recently published article states that the use of glucose intravenously given during operation lessens the acidosis incident to operation. This is very true but in view of the fact that only a very small number of operative cases will manifest symptoms sufficient to warrant more than the ordinary post-operative treatment, there is a question as to whether this should be advocated as a routine measure.

However there is a certain group of cases in which there is present a definite post-operative acidosis with that most distressing feature of persistent nausea and vomiting in which we have been using glucose intravenously with very gratifying results. These patients are of course unable to take fluids by the mouth and as a rule do not react to proctoclysis with any degree of satisfaction. Acetone is usually present and at times diacetic acid may be found in urine of these patients. The condition is one of a vicious circle in which the primary nausea and vomiting is reflex or toxic, soon becomes the nausea and vomiting of a true acidosis due to starvation with necessarily a decrease in urinary elimination that practically always shows a moderate trace of albumin as well as casts.

It is this type of case in which we have been using glucose intravenously and it is really surprising to note the marked improvement in such cases in an amazingly short time.

The reaction that follows the administration of glucose intravenously is mild or most often no general reaction may be noted. However, as a rule, shortly after giving this solution into the vein, there is a moderate amount of sweating and the skin feels moist over the entire body. This may reach a profuse sweat. Along with this there is generally noted a slight fall in temperature if this is elevated, probably due to the elimination through the skin as well as through the urinary course and the patient will state that he or she feels better. The drop in temperature is not immediate though usually manifests itself within a few hours. Very rarely a more severe reaction may be noted.

The pulse usually shows a moderate drop in rate though this may be slightly accelerated initially. The blood pressure is not materially influenced by glucose although there is usually an immediate fall of about 10 mil. mere.

Greatest of all is the marked improvement in the urinary output. This generally takes place rather quickly, within three to four hours, and may last over a period of twenty-four hours. If previous to the administration of glucose the urine showed acetone or diacetic acid this will be found to be greatly diminished and as time goes on will gradually disappear. The same holds as to the presence of albumin which will be decreased. This may be due to the dilution of the urine as there is a marked increase in quantity.

The noticeable improvement in the general appearance of the patient is very evident and in such cases that have had marked nausea and vomiting we have observed that this is definitely moderated and in most instances has cleared up rapidly.

One case might be mentioned—that of a patient on whom a Cæsarean section had been done for a pending eclampsia. For twenty-four hours immediately following operation this patient voided only five or six ounces of urine containing acetone, a large amount of albumin, which of course was present previous to operation, and an enormous number of casts. 500 cc. of glucose solution intravenously was given and during the following twenty-four hours the output was between 60-70 ounces of urine, showing a very decided improvement as to albumin and casts. At the end of this time only a slight trace of acetone could be found. There was a moderate drop in temperature, about 2 degrees, but this did not hold for over six or eight hours. The pulse dropped in proportion to the temperature and remained so. This patient had received Criles solution per rectum following operation though had not taken water by mouth owing to the presence of

marked nausea and vomiting. This cleared up quite readily after the administration of glucose.

Cases of infection in which there is necessarily an elevation of temperature other than the usual slight post-operative rise that is present in most instances, show a definite drop of from one to two degrees but this may not hold for more than a few hours when the former level is again reached. There is however most frequently a permanent drop in pulse rate.

The fact that glucose possesses a high food value that is easily and readily assimilable, it can play an important role in the prevention of protein catabolism of the body tissues. This being the fact it can readily be seen that it has a rather broad field of usefulness. Just here might be mentioned the use of glucose in cases of pernicious vomiting of early pregnancy in which there is present the starvation acidosis with large quantities of acetone in a scanty urinary output. Excellent results have been obtained in a limited number of cases.

A careful study of the urine should be made in all cases previous to the administration of glucose that an incipient diabetes is not present although studies in sugar content of the blood immediately after the injection of 250 cc. of a 10% solution show from .08 to .1 blood sugar per cent above the normal limit which in the normal individual is almost a negligible consideration. Further these higher figures rapidly return to normal after the lapse of a few hours.

From the physiological standpoint the injected glucose passes rapidly from the blood stream to the tissues and is there utilized at the same rate of injection provided this does not exceed 0.8 gm. per kg. of body weight per hour. If this rate is exceeded glycosuria develops.

We are convinced that the intravenous route possesses the advantage over other methods in that it is practically painless, very simply done and most important owes its diuretic properties to this method.

If given subcutaneously or per rectum it has first to pass through living membrane and in so doing assumes a colloid form and like other colloids diminishes diuresis. On the other hand if put directly into the blood stream it circulates as a crystalloid and like other crystalloids is a diuretic, due to its power to absorb water from the tissues.

As to the method of preparation and administration we have found that a 10-20% solution made with freshly distilled water titrated and neutralized with sodium carbonate, filtered and autoclaved on three successive days, is most satisfactory. It is first put into 250 cc. (8 oz.) bottles as they are easily obtainable and inexpensive.

A small needle, a 20 cc. Luer syringe and a three-way stopcock is all the apparatus necessary, the original bottle acting as a reservoir.

It is usually most convenient to use a vein at the elbow, the rate of flow being calculated as follows: if the patient weighs 75 kg. multiply 75 by .8 by 5 (i.e.-20%) which equals 300 cc. per hour or 5 cc. per minute.

An electrical pump has been devised by which the rate may be accurately sustained but this is an expensive instrument and hardly has a place in the ordinarily equipped hospital.

The use of this solution intravenously is simply suggested as an adjunct to the general post-operative treatment but in such cases where one contemplates its use do not wait until there is an overwhelming acidosis before doing so.

From 250 to 500 cc. can be given with safety as often as every 6 to 12 hours according to the general condition of the patient.

From the known physiological action of glucose given intravenously it seems very reasonable to advocate the feeding of a high carbohydrate diet to all patients previous to operation as well as the use of bicarbonate of soda during this period. Purgation of patients just before operation causes the loss of much body fluids and in itself predisposes to acidosis.

In debilitated individuals or such cases where one anticipates a lengthy operation with prolonged anæsthesia, loss of body fluid, etc., the administration of glucose intravenously immediately before or during operation will play a large part in preventing subsequent acidosis.

DISCUSSION

Dr. J. B. Bullitt, Chapel Hill: I hesitate to discuss a paper on this subject, as I am not a gynecologist and know very little about it, but the paper is an important one and, I think, merits your full discussion.

There are one or two points from a pathological standpoint touched upon by the essayist which are interesting to me. In one case malaria developed. In those sections of the State where malaria is prevalent, I think attention should be called to the number of cases in which malaria will break out under any sort of stress to which those patients may be subjected. During pregnancy and in labor frequently a malarial attack will come out. Some years ago, when I lived in Mississippi, the prevalence of malaria in the Delta was very considerable. Patients would go on comfortably, with no symptoms for years, and during pregnancy or after a surgical operation the latent malarial infection would become active. In persons likely to have this latent infection I think a blood test might well be done when the case comes up for operation or during pregnancy.

During pregnancy we expect a woman to be nervous, and we attribute too many things to her nervousness, and overlook a little abdominal pain which may be present and which may indicate infection of the kidney.

The mode of infection was brought out in the beginning of this paper. This is a thing which, I think, is very often not thoroughly appreciated. Infections not only of the pelvis of the kidney but also of the ureters very often do not come by the natural passage. In case of the kidney, I think it is a fact that very few, if any, infections pass up the lumen of the ureter. They pass by way of the blood stream, or by way of the lymphatics in the wall of the ureter. The frequency of bacteriemia is not generally appreciated. All of us, I think, frequently have a transient bacteriemia without ill effects. But if such bacteriemia come at a time when the body is under some special stress, or if it comes when there is some point of lowered tissue resistance, then the organisms may find a lodging point and may start an infection.

Dr. R. A. McBrayer, Sanatorium: As urologic surgeon for the State Sanatorium, I know quite a little bit about Dr. Highsmith's work. I have enjoyed seeing him do part of it, and I have greatly enjoyed hearing his paper. There is one thing that I would like to have heard him say, and that is that in a differential diagnosis we might think of tuberculosis. Also, the man who is dealing with tuberculosis might think of pyelitis. It is too often so easy to find only what we are looking for.

Recently Dr. Highsmith operated for us a patient with appendicitis, who had been running temperature. So far as her chest condition is concerned, there was no reason whatsoever for her running that temperature. But after Dr. Highsmith operated, and after he studied the case carefully, he was convinced that at present she has some pyelitis. That is a case where the tuberculosis man slipped, and it would have been well for all of them to have heard this paper. I do think that the man in tuberculosis could very well afford to pay more attention to this thing, certainly in the mild cases where there is an unexplained temperature. This is one of the instances, in my opinion, where we must watch.

There is one point which I think we should not forget, and that is this: Dr. Highsmith, in reviewing the pathology of this condition, stated that we do have with it a kidney pathology which is passive congestion, to start with, at least. Now, it is going to be easy for some workers who are not careful to make a diagnosis of pyelitis and

not know how much nephritis they have with it. The drainage of the ureter is easily done, as Dr. Highsmith said, by the increased fluid intake. However, I think that we ought to know how much nephritis we have. If we increase the fluid and, at the same time, put an increased amount of work upon an already damaged kidney, it is simply robbing Peter to pay Paul. The specialists, of course, would not do a thing like that, but frequently we others forget that the kidney must work out that increased intake of water.

Dr. L. A. Crowell, Lincolnton: I am sorry that I was not present during the reading of the Doctor's paper. I do not know whether or not the medical treatment of this condition was brought out. We have had considerable experience in these cases and have had splendid results from the use of acid sodium phosphate, used in connection with urotropin. These are used continuously together until the urine becomes distinctly acid, when we discontinue the use of the acid sodium phosphates and give sodium bicarbonate in its stead. We have had numbers of cases to clear up very rapidly under this line of treatment.

Dr. J. S. Brewer, Roseboro: There is one point which I would like to bring out, and that is prophylaxis. As Dr. Highsmith said, most of the infections come from two sources, the tonsils and teeth. Therefore I think it very important, when a pregnant woman first comes to the physician, that he make a very careful examination to find if there are any foci of infection in the body, such as teeth, tonsils, etc. I think that he should remove them, and not wait until a pyelitis develops.

Dr. Highsmith, closing the discussion: I would like to say, in regard to the use of sodium acid phosphate, that we use it together with the urotropin. We use sixty grains of urotropin, at least, in twenty-four hours. This is used in the very mild cases, just beginning.

In answer to Dr. Brewer's comment, I may say that we always make it a point to examine the patient thoroughly for any evidence of focal infection, and remove that. Very often we get very gratifying results from removing abscessed teeth and bad tonsils, and it helps very much in the treatment.

ECTOPIC PREGNANCY

A Study of 79 Cases, With Results

BY

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These cases occurred over a period of 15 years and do not include cases since Jan. 1st, 1921. Unfortunately some of our earlier histories are incomplete and my study of those cases must necessarily be brief. One of my objects in bringing this subject to your attention is the question of diagnosis and the possibility of recurrence. One prominent gynecologist and obstetrician has said that should diagnosis be made in 66-2/3 per cent of cases it would be excellent, while Williams, Baltimore, has gone so far as to say practically none of the cases could be diagnosed before rupture. However, I do not think this was intended for a public utterance. Oastler, New York, has classified the causes of ectopic as:

A.—Diseases of the tube proper, causing loss of peristalsis and cicatricial contracture.
1.—Salpingitis.
2.—Torsion of tube.
3.—Polyps in tube.

B.—Diseases outside of tube causing pressure on tube.
1.—Fibroids.
2.—Cysts.
3.—Bands of adhesions.

C.—Congenital defects.
1.—Mal-development.
2.—Diverticulum.

This is a very good classification and covers most cases. However, there are certain cases that will not fall into any of these groups, some cases without any apparent cause, undoubtedly there must be some interference with peristalsis within the tube.

The youngest age at which ectopic occurred in this series was 18 and the oldest 40, with an average of 29. Most of the cases had had from one to five children previously, though I cannot be accurate as to

what per cent. I have not been able to trace all of them since but know of several that have borne children and have one that has had three children since her operation.

The menstrual history sheds no light on our cases. In most instances the menstruation had been normal previously or at least as normal as the average individual. Most cases show a history of long sterility.

Recurrence of ectopic.—Several cases have been reported as recurring on the same side. Tweedy, of Dublin, reported a case in 1918 and Solomans of the same place the same year. In these cases a strand of catgut was inserted within the tube to keep the lumen open. On account of this possibility we have always made a practice of resecting the entire tube on that side.

A life insurance company will not give insurance on the life of a woman for a certain number of years after an ectopic pregnancy, because of the belief that it will be likely to recur on the other side.

There has been very little said as to the point of occurrence in the tube but from the report of others there seems to be no point of election. It is quite possible for an interstitial pregnancy to rupture into the uterus and continue development. Also a rupture into the abdominal cavity occasionally continues. For this reason some have advanced the argument that it is not always good surgery to operate early.

Sittner, in 1900 collected 121 cases from 1813 to 1900 of advanced abdominal pregnancy operations, in 1903 added 15 to this and in 1908 added 43 more cases. In 1913 Horsley added 10 cases to this series, and in 1917, Lee, of Chicago, collected and added 9 more cases. These cases occurring in his practice. I have been fortunate enough to see one case not included in this list, as it was while assisting Dr. Stokes, of Salisbury.

Double ectopic may occur and happened twice in this series, one side had ruptured while the other had not. Primary rupture of the pregnancy usually occurs about the sixth week, occasionally 7th to 8th, but rarely later than this.

Symptoms.—The most constant symptom is pain, of a semi-sharp or dull aching kind in the early condition, while in the more advanced cases it is violent and accompanied by severe shock and usually profuse internal hemorrhage. This is the variety that is most easily diagnosed. The subacute form is not so easily recognized but I believe can be fairly easily cleared up under careful and complete examination. In practically all these cases one may obtain a history of missing one or more menstrual period, for a week or two, vaginal hemorrhage then

coming on, usually intermittently, varying from a rather profuse flow at times to occasional staining or continuous light flow. Examination of this discharge discloses a dark hemorrhage with occasional small clots, under the microscope may show decidual cells.

The temperature and pulse in the subacute cases have not been distinctive, usually there is a slight increase in temperature and pulse rate. However, in the violent forms there has been from a subnormal to slight rise in temperature with a pulse from 120 to 160 or even imperceptible, usually very weak and thready. The character of the pulse and temperature with the violent pain and shock has been one of our greatest aids to diagnosis. It has aided us materially in differentiating from acute salpingitis. Occasionally cases have been reported of hydrosalpinx and moderately cystic ovaries giving almost the same signs as an ectopic. Why this should be so I do not know but they ascribe it to some endocrinic function of the ovary.

Blood examinations have not been made as a routine, especially in the earlier cases. In later years we have endeavored to do so and find almost invariably a slight leukocytosis, an average of eleven to twelve thousand. In cases of exacerbations, where infection has occurred, of course this is greatly augmented. In a majority of cases there has been periods of exacerbations till finally a severe attack of rupture has sent them to the surgeon.

The urine in these cases frequently shows slight trace of albumen. In spite of findings of others to the contrary we seldom find more than a trace and not as often as some lead us to believe.

In the physical examination we have always found tenderness over the offending area, varying from a slight tenderness with feeling of nausea to one of sharp pain. Where the tube has not ruptured we have frequently observed on deep constant pressure the pain is not so severe but this feeling of nausea and pain occurs on releasing the pressure. Vaginal examination one may readily palpate a mass on the offending side before rupture, while after rupture the cul-de-sac has a distinctive soft and boggy feel quite unlike that of any other pelvic disturbance. The cervix feels soft and uterus enlarged, pushed forward or to the opposite side. Irritation of the bladder and frequent urination is noted in most of the cases.

When you take into consideration the above mentioned symptoms: fever, ranging from slight to one or two degrees, rather rapid pulse for the fever, history of missing a period with subsequent irregular flow, tenderness over the offending side and mass in the pelvis the diagnosis is comparatively easy, some authorities to the contrary. As a last resort we have occasionally opened the cul-de-sac, being pre-

pared to treat whatever condition presents. One may, in suitable cases, easily treat a ruptured ectopic through this opening, as we have done, and have no cause to regret it. In this series we had 5 deaths, 6.3%. Two died day of operation, three from two weeks to two months later. The treatment in our series of cases has offered only one alternative operative, and the time to operate is when the diagnosis is made. I can see no valid argument for waiting. The possibility of forming a lithopedion or absorption or continued abdominal gestation is too remote and uncertain. You are jeopardizing your patient's life by procrastinating. There are certain cases of acute shock and hemorrhage requiring possibly supportive measures, but even in these cases delay is sometimes fatal, as we have found on opening the abdomen a vessel still bleeding. Several in our series were pulseless at time of operation. Saline or blood transfusion may be started co-incident with the operation. I absolutely agree with Pinard and do not counsel waiting.

CONCLUSIONS

1. That all cases should be operated on as soon as diagnosis is made, except possibly some cases in extremis.
2. That the entire tube on that side should be excised, otherwise conservative surgery should be practiced as many of these women have since borne children, one as many as three.
3. While there were two recurrences in this series, there is nothing to indicate that one ectopic predisposes to another.

A REPORT OF TWO UNUSUAL CASES OF PREGNANCY

J. R. Parker, M. D., Burlington

The first case I wish to report is one of bilateral tubal pregnancy, and since Dr. Tankersley has so well covered the subject of ectopic pregnancy I shall not take up your time to do more than report this case.

Case 1.—Mrs. M., age 23, mother of two children, admitted to hospital September 1920, with a diagnosis of ruptured tubal pregnancy. The clinical picture was typical, just what you have all seen in these cases. We immediately operated and found the abdomen filled with blood clots. On the left side there was a ruptured tube, which was removed, and all blood clots cleaned out, but we noticed we still had oozing. Examining the tube on the other side, we found there was a partial rupture but had not emptied its contents. So we had a case of double tubal pregnancy which had ruptured simultaneously, I suppose.

A short time after this operation I was in conference with Dr. Jno. B. Deaver, of Philadelphia, and during our conversation I asked him what his experience with bilateral tubal pregnancy had been. He said he had never seen a case, though he thought it possible there had been such cases. When we heard his statement we felt that our case was quite unusual, so we proceeded to collect data on the subject, with the following results: Forty cases reported as follows, American 17, British 6, French 6, German 9, Italian 1, Russian 1. These cases include only those that were proven by the size of specimen or by microscopic examination of same to be tubal pregnancy. The records further show that there have been only three cases where rupture was simultaneous. Launay, of Paris, in 1890 reports a case of bilateral tubal pregnancy with twins on one side. J. H. Corstens, J. A. M. Asso., 1920, LXXIV. 1518, also reports a case of double tubal pregnancy with one tube containing twins.

This case of ours made an uneventful recovery.

Case 2.—In regard to the second case I wish to report, will say that if I were talking to an audience of legal men it would probably be barred by the Statute of Limitation, as it was done in 1912. So far it is the youngest case of its kind reported. Cæsarean section on a negro girl 12 years and 2 months old the night she was delivered. She was not very well developed, hence the method of delivery. She made an uneventful recovery, and both mother and child left the hospital on the 22nd day in good condition.

The points of interest are the age of the patient and the history of having never menstruated before conception. The case that is nearest to this one in age was reported by H. J. Bell, of New York, in 1905. His patient was 12 years and 8 months of age.

DISCUSSION

Dr. J. W. Tankersley, Greensboro: May I just say that I hoped someone would have taken exception to my statement in regard to operating at once. I wanted to hear the other side. We have always followed that plan. Recently I had a patient walk into my office with this condition. I wanted her to go into the hospital, and she would not do it. Shortly afterwards, she had a rupture, and we had to take her to the hospital in the middle of the night and operate.

THE RELATION OF PREVENTIVE MEDICINE TO GYNECOLOGY

Owen Smith, M. D., High Point

Mr. President and Gentlemen:

Our profession is made up of individuals or parts and what one does influences the whole. The amount and kind of influence of course will depend largely upon the realization of self-service of each one and the performance of his particular kind of work.

Those physicians will do most to promote the advancement of the profession who do the best practical-technical work of which they are capable, and exert their influence, whenever possible, toward helping their fellow man and toward the better organization of society as a whole.

The history of the progress of medical science is a record of battles against an enemy persistent as life itself. The struggle has not been to make material life everlasting by eliminating death, but, by striking ceaselessly against those errors of life which are the basis of disease, make living always more worth while. The common notion that the science of medicine, like the vulture, gloats and fattens on the miseries of the body, is a sorry delusion. There should be better popular understanding of the activities of that science which has from the beginning held out strong and skillful hands to weakened humanity, guiding and supporting its blind and sometimes foolish steps, seeking, for highest reward, only the hope that some day its charge will be able to walk alone.

This, then, is the province of preventive medicine—to teach mankind to do without medical aid, except for such conditions as do not fall within the realm of preventable diseases. Unfortunately we are still far from this achievement when we take up the problem of gynecic disease. A percentage that can scarcely be reckoned is here due to entirely preventable causes and the aim of this specialty, in this post-war period when our great national and racial preoccupation is reconstruction, should be the identification and elimination of the cause of disease in women.

We may go at it with great thoroughness, dragging it back into the remote recesses of psychology and biology, or we may face it quite simply from the human standpoint, asking two questions: Why are women suffering these unnecessary afflictions, and, what shall we do to prevent them?

The case records of the gynecologist answer the first question, but here the answer comes too late. While developmental defects, faulty obstetrics, infections, are all causative factors, the time for the correction of these evils is past.

The answer to the second question, the remedy, is the concern of the entire medical profession today, and when it is faced with thoroughness of purpose there will be established that relation of preventive medicine to gynecology which is not only the concern of this specialty but of the entire people. Already the new current of democracy is turning in this direction and against the tide of uncondi-

tioned "medical freedom" so strongly urged by the advocates of various profitable cults and isms.

No enlarging on this theme could make clearer to you the menace of such freedom for the future, but, colleagues, the future is with *US*. Bolshevism in medicine will defeat itself as surely as this age will see its failure in politics. An ungoverned life is a life lost and carries other lives with it. The future is our concern and the secret of success is co-operation in preventive methods.

The present brilliant showing of the effort toward hospital standardization is significant of the widespread acceptance of this fact. Not union by coalition is advocated, nor by absorption of the lines of cleavage between specialties, but union in separateness and along the lines of a new relation.

The success of the old time family doctor was not, of course, due to his vast knowledge of all sorts of diseases, but to his practical sense of the relations between morbid processes and his ability, through supervision over his families, to apply prophylactic measures in time. Out of his zeal to compass the orbit of knowledge and skill has grown this division of our art into the specialties, thus providing ampler opportunity for development of the inexhaustible mines of information. To keep this division from degenerating into what it was never meant to be, the creation of unrelated arts, and to insist upon return to the original basis, one indivisible science of medicine, should be the object of all medical societies in this reconstruction period.

Therefore, the gynecologist, working in the new medium of standardization, can come before his colleagues of the related specialties and make emphasis on those points in which he feels their co-operation is vital to his work. His own researches, fortified by the statistics of hospitals, permit him to show to what degree the lesions he handles are due to causes outside his domain in practice while well within his province of theory. For the most part he knows that he has to deal with the results of errors and neglect in the developmental and in parturient periods, and with infections. He must therefore, ask of internists, family physicians and pediatricians, intensive efforts toward the control and safeguarding of the growing girl. Each time that an infantile uterus presents itself in an overworked school teacher, artisan, student or barren wife, he must make to those other specialties, a plea for the more thorough supervision of girlhood, and a campaign of effort toward elimination of the evils in our social system which intensively cultivate the mind while destroying the body.

And when I say "destroying the body" it is unfortunately not in a spirit of sensationalism; it is a reference in cold blood to the already

widely circulated reports of some of our leading authorities in obstetrical science who agree that the new type of woman appearing as the effect of over civilization, is no longer fit for maternity. "Indoor life and nerve tension" having prevented normal functional development, they announce that it is better that "the delicate nervous woman be delivered by cæsarean section than be subjected to the ordeal of labor."

Have we, as gynecological specialists, charged primarily not with the disease but with the health of women, no reckoning to pay in this crisis? What have we been about while the female of the species has been coming to this tragic pass? The answer is plain: developing the art of cæsarean section to such an admirable simplicity that it is easier for all concerned than the trying "ordeal of labor!"

May I digress here a bit and say a word about the indiscriminate removal of the ovaries? The story of the ovary is a lamentable one for it is condemned to the extreme penalty for all sorts of crimes running the gamut from amenerrhea through all the symptom complex of ovarian disfunction; as well as being held responsible for sterility, repeated abortions and toxæmias of pregnancy. Gentlemen, let us in the light of the present day advancement in knowledge of the function of the ovary and its associated glands (stimulate: thyroid, pituitary and suprarenal) depress: (corpus lutea, thymus, placenta and mamary), not sacrifice it on the altar of ignorance because it is "so easy to remove." The dire consequences of emasculating a woman we have all seen, and yet it is so easy to remove an ovary and promise a cure for any of the above ills. How often do we see these promises turned to regrets? How often is this nervous wrecked woman passed on to the neurologist or left a rudderless ship to drift from charlaton to quack? and from patent medicines to "dope fiend?" The removal of the pathological ovary is bad enough, so may I not urge that we study these cases more thoroughly and not become discouraged too quickly with a smoke screen of symptoms. I say frankly that the removal of ovaries and hysterectomies in some localities has become such a "fad" that it is nothing short of criminal, and totally unworthy of our high ambition of preventive medicine.

Gentlemen, the ordeal of labor existed before gynecology was known. No medical procedure is worthy to exist which has not for its object the sustaining and fortifying of natural functions as well as mending the results of unpreventable accidents. We must realize how much of the object of our first efforts has already been achieved, and stop short of suggesting the substitution in routine practise, of artificial for natural methods.

It is now that we as practitioners must turn from the laboratory and clinic for the moment in our investigations of disease and join forces with all medical organizations and lay movements in the study and promotion of preventive measures. Instead of making our supreme effort the giving to the delicate, nervous, incapable mother, a child by the easiest surgical method, let us take up the work of giving the children yet to be born their first right, the staunch and stalwart mother to whom her normal labor shall be an expected and a remembered blessing.

Again, each time that the gynecologist is confronted with the deplorable results of incompetent obstetrics he must turn to the obstetrician and offer co-operation in the battle against the blind and slipshod methods which permit all licensed and many unlicensed practitioners to practise this delicate and complicated and most important of all specialties. As has been pointed out by others before, the proportion of infant mortality and maternal morbidity due to improper obstetrics, it is not the obstetrical specialty which is to be blamed in this unfortunate state of things, for obstetrical work is not done by specialists to any major extent, but it is *THEY* who must carry the main burden of responsibility in all movements looking for amelioration of this intolerable situation. It is for them to demand that no one shall be permitted to do obstetrics who cannot show qualifications which measure up to standardized requirements: no one whose work is not open to scrutiny on hospital records; no one who is not more than willing to submit to all regulations undertaken for the sake of the patients committed to his care and of the public upon which he subsists.

Equally, when this unmeasurable result of infections of a preventable sort confront the gynecological practitioner, must he look to allied specialties for promotion of effort for the elimination of such infections and contagions as are responsible for the vast havoc to the tissues under this treatment.

Venereal diseases have been black-listed and barred by great campaigns undertaken in the interests of army efficiency and national pride, to an extent unpredictable in pre-war periods, and we have been shown that all such movements can be launched and well executed once the public mind has been moved in the right direction. But it has been only by means of the knowledge gained by the hard labor and devoted researches of the medical profession that these reforms have been possible. The public mind is not yet capable of instituting right measures for the control of disease processes without the guidance of the profession. But its immense agreement with medical sug-

gestions in this hour of need, and its hearty co-operation with professional effort indicate what may be expected in any concerted effort for the benefit of public health conditions.

The gynecologist who comes in contact with so many forms of easily preventable diseases should increase his efforts to enlist the help of all other specialists to the end that such manifestations of morbid processes as come within this classification shall be lessened to a minimum by prevention.

Prophylaxis is not a new work, but we have world illuminations on many old definitions and nowhere more clearly than on this word. The reconstruction of a world half ruined is proceeding along lines of prevention. There are no doctrines so emphasized today as the doctrines of prevention. The text of the day is preparedness, but we shall never again be so nearly destroyed by our own weak carelessness. It is the moment for pushing all methods of preventive medicine, and it is the business of each separate specialty to develop that too much neglected privilege of co-operation with its supporting neighbor.

My topic is the relation of gynecology to preventive medicine. I should only weaken its application if I attempted to show in what details certain diseases of women could be eliminated by preventive measures. These details are perfectly well known to those who listen; neither is it any new knowledge I bring, but as all propositions that are essentially true undergo development and take on force with the changes of the years, this interdependence of specialties has assumed vast importance since it is being brought to book by the advocates of preventive medicine, both professional and lay. It only needs the tremendous emphasis that can be put upon it by united effort to bring it to the forefront of medical consideration; and my purpose in this paper will have been fulfilled if it goes as a message to those other groups who, like this, are considering today the problems of health in a race that felt its need so deeply. And the need in bringing this emphasis, is not as an indictment of the past but as a legitimate outgrowth of all past efforts.

American medicine is a self-made thing. It has lacked endowed institutions; it has been obliged to deny emoluments to the devotee of pure research; and so many of us are so far away from the big medical centers and clinics, so that it has been built up by the average man of big ambition to excel, and a very real purpose to perform thoroughly his responsible duty of making the sick well. It has been practically essential that he apply himself to the thing to be done and dig out the way to do it.

However, it must not be forgotten that underlying the enthusiasm with which the American practitioner has developed the specialties, has been this very urge toward wider knowledge. He has felt that associations of colleagues devoted to the development of one line of work offer the best substitute for the endowed institution, and it has been all he could afford. It would be difficult to prove that this method has not had distinct advantages in favor of public health, which is after all the sine qua non of the art of healing. For we have now as a result of all this intensive special application, the demand for practical knowledge of laboratory theories of disease prevention, a return, as it were, of the demand for the "general medicine man" who was a sort of resumé of all the specialties.

The answer, my friends, to this demand is not to be along the lines that were suggested before the war period, i.e., wider knowledge of all the branches by each specialist. The volume of necessary knowledge has loomed too large for any such solution to be practical. The answer must be found in this union of the specialties into a co-operation for the development of preventive medicine.

Now as I have said, it is beyond the scope of this paper to point out the degree in which gynecology is interrelated to obstetrics, to pediatrics, to the department of the alienist and the internist; its whole intent is to leave with you a deeper sense of the high position to which this specialty may attain when it has realized its full opportunities for co-operative effort, and a heartier zeal to keep in touch, both in private practice and in public work, with the great impetus toward preventive medicine.

Persons, groups, communities, states and nations are fast learning that they can make no better use of time, energy and money than for the preservation of bodily and mental vigor.

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SHIRRING THE ROUND LIGAMENTS IN UTERINE RETRO-DISPLACEMENTS—A REPORT OF FIFTY CASES

PARRAN JARBOE, M. D., F. A. C. S., GREENSBORO, N. C.

In bringing this subject before you it is not my idea or intention to discuss uterine displacements, their cause or effect, but merely to extol a method of dealing with retro-displacements which I have found exceedingly valuable.

The operation of shirring the round ligaments was devised by my friend and surgical sponsor Dr. Long, whom I have seen perform it a great many times. It appealed to me as fulfilling the requirements in a selected class of cases of retroversions better than any of the other operations, which, as we know, are so numerous. In the last two or three years I have had an opportunity to use it a great many times, and the cases that I am reporting are the ones that I have kept in touch with and in which I have been able to form some idea as to the benefits derived.

Before going further it might not be amiss to say a few words in regard to the round ligaments. They are two fibro-muscular cords, one on each side, which arise from the top of the uterus just in front of the Fallopian tubes, and extend outward and forward in the upper part of the broad ligaments to the internal inguinal rings. They then pass through the inguinal canal, and, at the external ring, break up into fibrous filaments which are lost in the tissues about the symphysis pubis. Their length varies, but normally it is about 10 to 12 cm. from the cornua of the uterus to the internal inguinal ring. It is not the function of the round ligaments to hold the uterus in situ by their tensile strength but rather to act as guy ropes, so to speak, keeping the uterus in its normally anteverted posture so that the intra-abdominal pressure is exerted at the proper angle. This intra-abdominal pressure which plays a great part in uterine displacements is directed normally so that its point of greatest intensity falls upon the uterus about 1 and 1½ inches posterior to the fundus. Therefore in an abdominal cavity of normal skeletal configuration a true vertical from the center of the diaphragm in contact with the Sacro-lumbar angulation will impinge against the inner surface of the symphysis pubis at its lower border, thus passing through the fundus of the uterus and broad ligaments from the posterior surface aiding thereby in maintaining the normally anteverted position.

When the uterus has become displaced backward by some of the many causes with which we are familiar and the ligaments have be-

come elongated any operation to remedy this defect should maintain the normal anatomical relations of the ligaments and have the tention exerted from the inguinal ring to the normal insertion of the ligament in the cornua of the uterus. The shirring operation seems to meet these indications ideally. Thirty-eight of the cases that I have followed up have had no return of symptoms, and are what I would consider perfect cures. Six have continued to complain although there has been marked improvement, four of these cases I have re-examined and been able to demonstrate the uterus in proper position, the remaining six cases have been total failures. Only one of these have I had an opportunity to re-examine and in this one found that the uterus was in the same position as before operation, the others having become generally dissatisfied, and disappointed have sought relief at the hands of other surgeons. In this connection we should not lose sight of the fact that a majority of cases of retro-displacement in young women are accompanied by a long train of nervous symptoms and there has usually been developed a neuro-psychosis, which we cannot possibly hope to cure by the mere mechanical performance of an indicated surgical procedure. The pathological process has passed beyond the surgical lesion and unless we realize that we have to deal with a neurosis and treat our patient accordingly we are practically certain to fail in our efforts.

The technique of shirring the round ligaments is probably familiar to most of you, a small median abdominal incision is made, the retraction should be made upward which gives a good exposure of the ligament all along its course. A tape sponge laid along the outer side of the ligament will keep back any stray intestine that always likes to bob up in the way. The ligament should be grasped about its middle with a tenaculum or a pair of small sponge holders and be pulled taut. This is one of the most important points of the operation as it gives about one inch of recoil after the suture is tied which pulls the redundancy of the ligament snugly up against the inguinal ring. While making traction with the forceps a round needle threaded with silk or linen is thrust through the ligament just as it emerges from the inguinal canal, a continuous over-lapping suture is made down to the point where our judgment tells us is far enough, the ligament is then drawn up by the suture which is done as Dr. Long says like the ladies shirr a ruffle, after tieing the knot the original operation was to pull down a small meso-peritoneal fold over the suture knot. I have found a little deviation which I think is beneficial to suture the parietal peritoneum completely around the fold of the ligament thus making practically an extra peritonal operation re-inforcing the liga-

ment and doing away with any possibility of post-operative adhesions. While this operation may not be perfect, from my experience and we have had many more than fifty cases, I am firmly convinced that in its indicated class shirring the round ligaments is one of the best procedures for correcting these uterine abnormalities that has ever come under my observation.

CASE OF MINOR TERATA

Patient of Dr. T. E. Person, Stantonsburg, N. C.

Delivered and reported by Dr. Henderson Irwin, Eureka, N. C.

According to Webster, teratology is that branch of biological science which treats of monstrosities, malformations, or deviations from the normal type of construction, in plants or animals. There are many anomalies and curiosities in medicine and the anomalous and curious construction and functions of the human body, have been a persistent fascination to philosophic minds, and the strange and mysterious things of the body have occupied man's earliest, as well as much of his later attention.

Ambrose Pare loaded his books with references to the impossibly strange and even mythyological cases. Among the older naturalists, such as Pliny and Aristotle and even in the older historians, whose scope included natural as well as civil and political history, the atypic and bizarre, and especially the aberrations of form or functions of the generative organs caught the eye most quickly. Even in this day and time it is largely the curious and rare that are thought worthy of chronicling, and not the establishment or illustration of the common, or of general principles.

Hardly a medical journal is without its rare or unique case, and many thousands of cases of one kind or another are contained in medical literature. Hence I have no apology to offer in reporting this case of Minor Terata, and which comes under the class of monsters called Sirens, on account of their resemblance to the fabulous creatures of mythology of that name.

TERATAGENY: It is supposed that under the influence of compression exercised in the uterus during the early period of gestation, fusion of the extremities is effected, the appearance of these monsters are thought to resemble the enchantress celebrated by Homer.

Case:—Mrs. S. W. P., white, age 26, married nine years, mother of four children, all of whom are living and in good health, began labor. Patient had been pregnant nine months with no special trouble during this period. Patient was in good physical condition, height, weight, and measurements were all right. Pains began in back and across the upper half of the abdomen. These pains were irregular and weak, lasting all day, neither increasing nor decreasing. About 10 P. M., the family physician was summoned. By abdominal palpation and vaginal examination he made the diagnosis of breech presentation, the breech being high up. An hour later a second examination showed very little progress, if any, the pains still weak and irregular. About 1 A. M., I was called, the patient anesthetised. By thorough vaginal examination, I found a breech presentation with malformations, no genital organs, no anus, no motion of the knee and only one limb could be made out. Foot extraction seemed impossible. It seemed a case for Cæsarean section, but being inexcessible to a hospital, we had to accept the situation as it was and adapt ourselves to the existing circumstances.

Treatment:—Anesthetic stopped, pituitrin m. 10 h. t. given. Pains soon increased both in frequency and in strength, and the breech began to descend. When well down under the pubic bone I slipped the index finger of my right hand into the groin of the anterior hip and by traction downward in the axis of the inlet and pressure above the pubic bone with the other hand, the anterior hip was delivered. Then the index finger of my left hand was slipped over the back along the crest of the ilium into the posterior groin and with traction in both groins in a downward direction the whole pelvis was delivered. The remainder of the child was delivered by traction and the usual manouvers and manipulations, the feet coming under the chin.

Examination of the baby, which was dead, revealed a perfectly developed child from the hips up. The lower extremities were fused as one longitudinal mass with the bottom of the feet meeting in the midline. The toes were not uniform but there were ten in number. Two sets of bones existed from the hips to the toes. Both knees and both ankles were easily and plainly found, but there was an absence of motion in both, no anus, no genitalia. There was no evidence of syphilis. There was no x-ray made of the child.

A careful history of the mother showed no deformity of any of her people, nor of her husband's people. She was not frightened during gestation and had no peculiar tastes nor desires. No evidence of syphilis in either family. For your further study and consideration and suggestions I present this case and picture of Minor Terata.

GONORRHEAL INFECTION IN WOMAN

B. S. Herring, M. D., Wilson

(Read by Title)

The prevalence of gonorrhea in woman varies greatly according to her social status. Varying from 95% in the professional prostitute, to a percentage so small in the most refined type of unmarried woman as to be considered negligible. Though refined social status is a barrier against gonorrheal infection in the unmarried woman, too often,

this barrier is knocked into a cocked hat by our most sacred social institution.

Stokes speaks of gonorrhea as one of the most common of significant diseases. Ranking it, in prevalence, far ahead of such contagious infections as smallpox, scarlet fever and diphtheria. In fact, ranking it a close second to measles, the most contagious disease that affects the human being.

From statistics furnished me by Dr. Knowlton, I quote the following: "The great majority of pelvic infections may be classed under three headings: namely, gonococcal, pyogenic and tubercular. The relative frequency, with which the gonococcus is found, will be shown by the following: gonococcus 43%, pyogenic 24%, colon bacillus 5%, tubercular bacillus 1% to 3%. The results obtained from the cultures of pus from 106 cases of pyosalpinx shows: sterile 64%, gonorrheal 21%, tuberculous 8%, streptococcal 4%.

Another report of bacteriologic examinations of 122 cases of suppurating tubes shows 61% sterile, 23% gonococcal, 7% tubercular, 3% pyogenic.

C. R. Hyde, (American Journal Obstetrics, 1908), in an examination of 2,973 cases, reported the tubal contents sterile in 67%, gonococcal in 19%, other mixed infection 15%. Statistics computed from the University Clinic of Frieberg showed 43% of suppurating tubal lesions due to gonorrhea.

The above gonococcal percentages do not, by any means, represent the actual proportion of those cases which were of gonorrheal origin. For, apart from the well known difficulty of demonstrating the gonococcus by either culture or staining methods in chronic cases, it is a well established fact, and one of great clinical importance, that long encapsulation tends to destroy the gonococcus, perhaps by its own toxins.

Gurd, after a careful study of twenty cases of salpingitis, states that he believes the gonococcus to be the exciting factor in the production of the affection in at least 80% of his series. He further adds that the reason many bacteriologic examinations are negative, is that the material for examination is obtained from the free pus in the abscess cavity. If the material is removed by curetting the wall of the abscess, there is much more likelihood of obtaining positive results, as the gonococci persist in a virulent state in such areas, long after those in the free fluid become attenuated or are totally destroyed.

It is well recognized that gonococci can be demonstrated in the tubes in only a small proportion of chronic cases of salpingitis, even by the most painstaking and thorough bacteriologic examination.

This must be considered in analyzing any series of statistics.

Gonorrheal infection in young girls is not rare. One of the most frequent types seen in young girls being vulvo-vaginitis, a most troublesome infection. One calculated to destroy the future happiness of the one infected. Gonorrheal ophthalmia is more common in infants than in adults. The infection in this case usually being contracted during the passage of the head through the pus-laden birth canal of the mother.

GONORRHEA IN WOMAN IS A TRAGEDY

However innocent, she is the most constant carrier as well as the greatest source of the infection. Though she knows something is wrong and seeks advice, she is lied to by both friends and medical attendant thereby depriving her of her best chance to get well, and though curable if taken in time, becomes absolutely incurable if left alone long enough, which is explainable on anatomic grounds. The anatomic situation offering very little hindrance to the upward travel of the infection, to the very vitals of her sexual anatomy and even to the patient herself; resulting in a destruction of the physiological function of the sexual apparatus.

Gonorrheal infection in woman has a greater sociologic and economic importance than in the male.

1st.—She is the most constant carrier of the infection.

2nd.—She is a source of infection longer.

3rd.—In woman it represents a most grave danger to the newborn as evidenced by the fact that a large percentage of the blindness in the world is due to gonorrheal ophthalmia contracted during birth.

4th.—Gonorrheal infection in woman presents a most grave economic problem to a nation when it retards the growth as it has in France. It being estimated that of the two million sterile marriages in France, one million of them are due to gonorrheal infection in woman.

5th.—It is estimated that 50% of all pelvic operations on women are for gonorrheal infection.

If the above be true then isn't it true when we say, gonorrheal infection in woman is one of the most serious and one of the most prevalent of the serious infections that woman is heir to, and isn't it time to adopt a more radical treatment and more stringent laws to suppress the spread of the infection. Isn't it time to quit being so secretive on the subject, and give it more publicity in the hope that forewarned will prove forearmed; for surely it is better to speak

of gonorrhea in polite society than to contract gonorrhea in polite society.

If the burden of war falls more heavily on woman than man, ten times more heavily does the burden of gonorrheal infection fall on woman.

TREATMENT

The remedies and treatments, like the remedies and treatments for nausea of pregnancy, are legion.

Instead of attempting to give a treatise on treatment, I shall try to give the one treatment that has given me best results, in certain phases of the infection.

Be it understood that in gonorrheal infection, as in other serious infections, hygienic and sanitary measures are to be maintained.

The only direct treatment, with the exception of possibly the serum treatment, is local. Local treatment is for the purpose of either killing the gonococcus or getting rid of it, depending on the site of the infection. In gonorrheal urethritis and vaginitis, it is not practical to get rid of the infection, at least not at once; so here the treatment is directed at destroying the germ. For this purpose, in both locations, I use a 25% solution of Argyrol. All of the silver preparations have been held in high repute in the treatment of gonorrheal infection and though Argyrol is probably the weakest, it is the least irritating. A small syringe or medicine dropper is a convenient means of injecting Argyrol into the urethra, the injections to be made at least twice daily. If there be much burning and irritation on voiding give Tr. Hyoscyamus with some alkaline diuretic mixture. If there is a coexistent vaginitis, do not wait until the urethritis is cured before beginning treatment for the vaginitis. Treat the vaginitis locally with Argyrol. The manner in which the Argyrol is applied will spell success or failure.

A piece of hospital gauze 12x12 inches, wet with a 25% solution of Argyrol applied to the vaginal wall is to me the treatment par excellence. Introduce a bi-valve speculum exposing the cervix. With moist pledgets of cotton thoroughly cleanse the vagina from cervix to vulva. Again introduce the speculum, paint the vaginal wall with a 25% Argyrol; this is easily done by withdrawing the speculum, without closing the blades, painting the vagina as the speculum is withdrawn. Re-introduce the speculum exposing cervix. With vaginal forceps pack the gauze, wet with Argyrol, around the cervix, again gradually withdraw the speculum, at same time packing the gauze in every fold of the vaginal wall. This insures a continuous application

of Argyrol to every part of the vagina. This treatment to be repeated daily. A week or ten days is sufficient to cure most acute cases of vaginitis.

CHRONIC GONORRHEAL INFECTION IN WOMAN

The favorite sites for chronic gonorrhea in the female are, Bartholin glands, cervical canal and Fallopian tubes. If the infection becomes chronic in Bartholin glands abscess formation takes place. Do not lance the abscess but excise the gland at first treatment, this will get rid of the infection. Probably chronic gonorrheal endocervicitis is the most troublesome form the general practitioner is called upon to treat.

I have tried curetage, silver nitrate, iodine and even galvanic electricity with copper electrode with poor results. Better and more certain results are obtained from the use of the actual cautery. Slightly dilate the cervical canal to the internal os, under general anesthesia, with a cherry red cautery thoroughly cauterize the entire wall of the canal. Usually one treatment is sufficient.

The form of chronic gonorrheal infection in woman that the surgeon is most frequently called upon to treat is tubal infection. This is gonorrheal infection in its worst form, in the very vitals of the woman's sexual anatomy.

The infection that causes sterility.

The infection that makes invalids of women.

The infection that calls for abdominal operations.

The infection that leads to the divorce court and I might say the infection that kills the mother, for most frequently the infection is carried to the tubes during the puerperium.

How often have all of us made insurance examinations and on asking the cause of death of mother, the answer was, she died from child birth.

As it is necessary for women to bear children that the race may be perpetuated, let the medical profession do everything in its power to lessen the risk of infection to the present generation, with the end in view of entirely eliminating gonorrheal infection in woman.

Ideal surgery should aim to cure disease and restore affected parts to normal. But as I said before, chronic gonorrheal infection in woman if left long enough becomes absolutely incurable. So for this reason, I do not advocate trying to cure gonorrheal infection of the tubes. Instead I believe the proper measure to be to remove the tube, thus getting rid of the infection together with the affected part. If both tubes are infected remove both tubes. You can at least have a

clear conscience in knowing that possibly you have saved the woman from a future ruptured ectopic with perhaps fatal hemorrhage.

Too often has every surgeon had the experience of working over a matted condition of the entire pelvic viscera with the hope of at least saving his patient's sexual vitality, when after an hour of such vainless attempt, with a voice of despair he announces to his assistant that the whole works must go. Thereby hanging the ovary tale. I left you a piece of ovary. By all means leave a piece of ovary. I have never seen both of them entirely destroyed. Remove all infected parts as rapidly as possible, thereby lessening danger of shock to your patient.

With the entire medical profession doing its utmost and the various law making bodies co-operating, gonorrhea can be practically eliminated.

On the grounds that a child must learn to crawl before walking is the only justification for the present weak and inefficient law that we now have in regard to the health certificate before marriage.

The general practitioner is in no sense proficient enough in scientific examinations to issue a health certificate, stating that the person examined has no infectious venereal disease. Examining for an active discharge is inadequate.

That there is no visible evidence of venereal disease is no sign that venereal disease in an active stage does not exist. It would take a trained expert to make an examination that would insure an innocent girl the protection that she deserves, the protection she should expect from the health certificate. The health certificate should be as genuine as the license. Only one person in a county may issue a marriage license, why have from twenty to fifty issuing health certificates for marriage.

HOW TO GET EXPERT MEDICAL EXAMINATIONS

Each county should have a health officer trained in laboratory technique, or the usual whole time health officer could have an assistant so trained. This assistant should be preferably a woman. It would open up a wider field for the scientifically inclined woman. Each county to maintain a well equipped laboratory. The expense of maintaining health officer, assistant and laboratory to be met by charging each applicant a fee of from three to five dollars. The examination to include physical, Wassermann and microscopical examinations. The health certificate to be issued not more than ten nor less than five days before issuance of license. This laboratory would be of inestimable value to the community, as each physician would have the benefit of expert laboratory diagnosis. He to pay a reasonable

charge for such assistance. True, some counties would hardly be able to maintain officer and laboratory; in such case the adjoining county would and it could be made legal for a person to get a health certificate from any properly accredited health officer in the State. With such a health certificate, and the right of a wife to sue her husband for infecting her with a venereal disease then it would not be said that marriage broke down the barrier against venereal infection erected by refinement in the unmarried woman.

OOPHORECTOMY

Edmund S. Boice, M. D., F. A. C. S., Rocky Mount

(Read by Title)

It is hardly an exaggeration to say that it is almost a daily occurrence for the surgeon doing much gynecological work to be consulted by some woman who has gotten the idea that there is "something wrong with her ovaries." It is also true that there is a surprisingly large number of women who have had one or both ovaries removed, yet who give no history of pelvic inflammation or of symptoms which would indicate true ovarian disease. Having in mind these two classes of patients and the frequency with which some condition other than ovarian is found to be the cause of the symptoms, I have reviewed the hospital records of the patients subjected to oorphorectomy by my associate, Dr. B. C. Willis and myself in order to get some idea of the number of cases showing real symptom producing pathology of the ovary.

Up to April 9, 1921, there had been 2,215 patients operated upon at Park View Hospital by us. Of these cases 294 were abdominal operations for some condition of the uterus and its appendages. Of these 294 patients there were 115 subjected to oophorectomy. In 26 cases both ovaries were removed, while in 89 cases only one ovary was removed. 146 patients, or practically one-half of the cases under consideration, were colored women, an interesting observation when it is considered that of the 2,215 patients operated only 474 were of the negro race. It is also interesting to note that of the 26 cases requiring bi-lateral oophorectomy, 19 were colored, while all of the three cases of bi-lateral oophorectomy under thirty-five years of age were colored. This predominance of negro women is of course due largely to the relative prevalence of pelvic inflammatory conditions in that race. The great majority of the patients from whom one ovary only

was removed were still not far advanced in the child bearing age. Of the 26 cases where the bi-lateral operation was done one was 23 years of age, one 25, and one 33. The remainder were all over 35 and 15 were over 40 years of age.

A number of the cases operated at or near the menopause showed only atropic changes. Still other ovaries showed no gross disease of themselves but were so involved in some other condition such as tubal adhesions, fibroids, or ectopic pregnancy, as to make their removal necessary. It is thus evident that while 115 patients suffered the loss of one or both ovaries, it is by no means correct to say that ovarian disease sufficient to warrant extirpation was present in all cases. Certainly we are safe in saying that not more than 100 cases presented evidence of really crippling pathology. In fact we have often been struck by the relatively slight pathological change seen in an ovary which had been dug out of a mass of pelvic adhesions, and we have come to believe that ovarian tissue is one of the most resistant to infectious processes. However many of these ovaries are undoubtedly the seat of more or less so called interstitial oophoritis, which as Graves points out is really not an infectious process at all but rather one of tissue degeneration, most often having for its etiology some disturbance of ovarian circulation. If this process has progressed to excessive cyst formation or if the parenchyma has been destroyed leaving only an atropic, fibrous and therefore useless organ, conservative treatment is obviously useless. We have felt however that where this degeneration has not markedly advanced but the ovary possibly is giving symptoms because of adhesions or other extra-ovarian conditions, approximately normal function might be safely restored if these neighboring pathological conditions could be relieved without impairing the blood supply of the ovary itself. In this we are in a measure at least supported by Graves who says "it is probable that most cases of co-called ovarian pain result from peritoneal adhesions, varicosities of the broad ligaments, torsion of the ovarian vessels, possibly the drag of a heavy organ on the ovarian ligaments." In short it would seem probable that many cases of pelvic discomfort may be similar in their origin to the discomfort produced by varicocele in the male, and often the treatment need be no more radical so far as the ovary is concerned than that which is found sufficient in the male.

As regards the indications which prompted us to do an oorphorectomy in these 115 patients, there were 68 cases in whom cyst, either simple or multilocular, was found. In only one case were the ovaries removed for carcinoma, though there were three patients, not included

in this series, who were explored and found to have inoperable carcinoma apparently originating in the ovary. There was only one dermoid cyst and only one solid non-malignant tumor of the ovary. Three ovaries were removed with a ruptured ectopic pregnancy, while in 12 ectopics we were able to preserve the ovary. The remaining operations were for various stages of infectious oophoritis secondary to pus tubes, or, as mentioned above, were secondary to some other procedure as hysterectomy or salpingectomy, the ovary itself showing no marked pathological change. The number of ovaries removed in the course of hysterectomy might have been larger, but we have in a good many instances left one or both ovaries undisturbed in doing hysterectomy around the time of the menopause, or even after that time, because the patient was not a good risk and the removal of the ovaries would have added somewhat to the technical difficulties and hence to the length of operation. In this matter we have followed a somewhat similar rule to that which is generally observed with regard to secondary removal of the appendix.

An interesting and important point is the decision as to whether or not the ovaries shall be preserved when it is necessary to remove the uterus in young women. According to Novak, Graves believes that the so-called menopausal vaso-motor symptoms are observed with practically the same frequency after the removal of the uterus, either with or without removal of the ovaries as after total ablation of ovarian tissue alone. He ascribes the causation of these symptoms not to a mere withdrawal of the ovarian hormone, but to a "break in the utero-ovarian harmony." He therefore considers that there is no advantage in conserving ovarian tissue when hysterectomy is necessary, and that such retention may be actually harmful. We have removed the uterus comparatively infrequently in pelvic inflammatory disease in young women, even when bi-lateral salpingectomy was necessary, if it was possible to retain functionating ovarian tissue and the uterus was not obviously badly diseased. We have felt that in the average case of pelvic inflammation in young women the uterus and hence the menstrual function can be preserved without endangering the health of the individual if the diseased tubes are removed and the infected cervical glands are gotten rid of by amputation or destructive cauterization, of the cervix. If Graves' contention is true it would seem to give an added reason for retaining the uterus in these cases. However, even when hysterectomy has appeared advisable it has been our custom to retain ovarian tissue if possible except at or near the menopause, and we shall probably continue to do so until

the internal secretory function of the ovary, and especially its relationship to the other glands of internal secretion, is better understood.

In recent years there has developed a great deal of discussion as to the real significance of the artificial menopause, and much clinical evidence has been brought forward tending to show that the disturbances incident to the removal of the ovaries in young women is relatively slight, in some cases so slight as to be of no clinical importance. Culbertson states that "ovarian loss before 25 years of age is rarely followed by any slight manifestations of menopause," while there is a "gradual increase in menopause manifestations according to age." This he explains on the theory of "duration of association" of the ovary with the other glands of internal secretion. "That is to say, the longer the endocrine glands are associated in function with the gonad, the more marked will be the disarrangement when that gonad is withdrawn." He also states that, while it has been his constant aim to preserve ovarian tissue whenever surgically possible, still in 12% of operations for the effect of pelvic peritonitis in women between the ages of 15 and 25 he has found it necessary to extirpate the uterus and both appendages. Of this number he has been able to follow up about 40%, and not one has suffered sufficient menopause manifestations to induce her to continue treatment, the majority considering themselves "entirely well in being relieved of pain and leucorrhea or menorrhagia." However, it would seem not unreasonable to suppose that such patients might be considerably less likely to notice the symptoms formerly thought certain to follow a precipitate menopause than would the nervous individual who has never suffered from real pelvic pathology but whose normal ovaries had been removed from an equally normal pelvis for some fancied "ovarian trouble" which never existed. Certainly the patients from this latter class, operated elsewhere, who have come to our notice have been so difficult to handle that we are prepared to believe that this supposition may in a measure be correct. Undoubtedly the older teaching had some foundation, and it would seem not improbable that this foundation may have been operations which nowadays would not be performed.

However, leaving aside theoretical considerations, the practical value of the observations of Culbertson and others lies in the knowledge that when the force of circumstances compels us to remove both ovaries from young women we are not really condemning the patient to the profound, physical and psycho-neurotic disturbances formerly thought to be inevitable.

In summing up I can do no better than quote Novak who says, "It is probable that most surgeons, appreciating the internal secretory

function of the ovary, will still continue to practice conservation of healthy ovarian tissue whenever possible. On the other hand, important as the ovary is, it is by no means essential to life or to the maintenance of good health, and ultra-conservatism may sometimes work more harm to the patient than so-called radicalism. The course to be followed in the individual case must be influenced by many other factors than the mere consideration of the physiological function of the ovary. Most important among these factors are the importance to the patient of future childbirths, the character and extent of the pelvic lesions, the patient's age and her economic and social status."

Dr. Oren Moore, of Charlotte, was elected as Chairman of the Section on Gynecology and Obstetrics for the year 1921-1922.

CHEMISTRY, MATERIA MEDICA AND THERAPEUTICS

TARTAR EMETIC IN PARASITIC DISEASES

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There are so few real specifics in medicine that the addition of a new one is a matter of real interest, though the application of it may at the time seem rather remote. But when a specific in parasitic diseases is discovered it becomes a matter of more than passing importance to the State of North Carolina. We are in the habit of overlooking the fact that nearly half of this State lies in the subtropics and that a large portion of this half is warmed by the Gulf Stream. It is only our indifference which limits the number of parasitic diseases to the present few with which we are familiar. How many of us twenty years ago would have believed the possibility of the hook worm exposure or the wonderful result which has accrued from its conquest? Twenty years hence we shall look back to this year and be amazed at the complaisant manner in which our transactions made no reference to the fact that in this good year 1921 we had possibly a score of life-sapping animal pests unknown to us. Familiarity has bred contempt, and having pasty faces with reduced vitality and general lethargy so continuously with us, like the poor, we have failed to see anything unusual about it. How many of us doing ward work in general hospitals in this State are daily impressed with the cases of profound anæmia? The patients are admitted for other conditions but the anæmia rises up and accuses any honest physician whenever he enters the ward. If he happens to be peculiarly conscientious he asks the intern if the feces have been examined for hook worm and when told that the search has been repeatedly made but without result he feels that his conscience can rest in peace and passes on rapidly. Had he gone a little deeper he would likely have found a high eosinophilia or possibly even an enlarged spleen though not of malaria origin. It is not necessary to visit a general hospital in North Carolina to see this picture for it is much more frequent in the country districts where there are no general hospitals. An automobile trip from the mountains to the sea will serve the purpose admirably. We are asleep allowing a noble opportunity of service to pass us by. We had to have a stranger come to us in 1902 and show us the hook

worm which we as a profession had seen and not perceived since the earliest settlements, for as long ago as about 1710, Dr. John Brickell had observed the tallow faced dirt eaters of Carolina.

The two parasitic conditions in which tartar emetic acts as a specific are the Leishman-Donovan infections commonly known as kala-azar and bilharziosis or schistosomiasis. The drug in conjunction with atoxyl is also used in African trypanosomiasis and is regarded as the most promising form of treatment, but this disease does not concern us directly. In the two former conditions, however, there is every indication that it is only a matter of time before they will be regarded as of first importance.

In 1914 Castellani used tartar emetic with other drugs successfully in a case of Indian kala-azar. The result seemed to justify its routine use. In 1915 Di Cristina and Caronia reported the cure of 8 cases of infantile kala-azar with antimony. Later Rogers further extended its use in the same disease. To prevent hemolysis Caronia suggested that the strength of the solution be not greater than one per cent. The drug is best given intravenously though there will always be some to advocate intramuscular injections which, however, should be condemned as the result is painful with a final slough in many cases. The sterilization should not be done in the autoclave but by flowing steam on three successive days. Raising the temperature higher than this would result in decomposition, which is said to render the drug exceedingly toxic.

Recently we ventured the diagnosis of true Indian kala-azar in Wilmington in a man who had never been out of the State. For a long time unexplained splenomegaly with profound secondary anæmia and fever without malarial parasites has caused much diagnostic trouble. This disease is characterized by all of these symptoms to which are added a marked leucopœnia and the presence in the bone marrow and spleen of the Leishman-Donovan bodies which, on rare occasions, may be found in the peripheral blood. Hitherto the treatment of the condition has been entirely without result but now it is definitely proven that tartar emetic is a specific. In the skin type of the disease which is common in South America under the name espundia the local application of an ointment containing the drug will bring about a cure. Since this disease is so easily cured it behooves us to do splenic punctures in our splenomegalies and search the leucocytes for the Leishman-Donovan bodies which are readily stained with the eosinate of methylene blue stains.

Plimmer and Thomas were the first to prove experimentally the remarkable power of the antimony salts in the destruction of trypano-

somes and today the drug is regarded second only to arsenic in its curative value in trypanosomiasis.

Chronic antimony poisoning has been often mistaken for lead poisoning. It causes leucopœnia, low blood pressure, insomnia, dizziness, headache and pain in muscles or nerves. It is absorbed with greater difficulty than arsenic.

In tropical relapsing fever Salmon has reported moderate success with the use of tartar emetic.

Recently Voegtlin, Smith, Crane, Wright and Cornell in the Hygienic Laboratory in Washington have made a most important contribution on the quantitative study of the chemotherapy of arsenic and antimony. They show that differences in toxicity and parasiticidal activity of arsenic and antimony preparations of whatever kind can be explained on the hypothesis that they must be changed to a single type which is the oxide. Without this change no principle toxic action will be excited. Both arsphenamine and neoarsphenamine must be oxidized in the body before acting on parasites. By injecting one half the minimum effective dose of arsenoxide and one half the minimum effective dose of antimonyllactate the two together prove quite effective while singly no result would follow. They conclude that arsenic and antimony are trypanocidally complementary, an assumption which does not accord with Ehrlich's theory of "chemorecepter activity." This digression is made to show the trend of the pharmacologic study of this group of protozoal poisons. Its further advance will doubtless add much to the small knowledge of antimony which seems destined to play a large part in the future.

A word is necessary as an introdction before the treatment of schistosomiasis is discussed. The disease is due to a fluke of two species. One is the Schistosomum hæmatobium which causes the bladder type of infection and is clinically characterized by eggs with a terminal spine and the rectal type due to the Schistosomum mansoni with eggs having a lateral spine. This diagnosis is made in the one instance by urine containing pus and mucus and the specific eggs in an individual usually showing an eosinophilia. The disease manifested by the most varying degrees from that of no symptoms to a high degree of anæmia, prostration and finally degeneracy. In the other type the disease is diagnosed by the finding of the ova in the feces. The symptoms again may be of most varying intensity.

When the British Army occupied Egypt during the war the problem of schistosomiasis was more serious than that of real war. It had been the curse of Egypt, since the earliest record for mummies of the twentieth dynasty show the presence of the ova in the bladder. It is

to the credit of the British that the intermediary was discovered and the life history completed. Two snails: planorbis and bullinus were found to harbor the parasite as it emerges from the urine or the feces and in the snail's liver certain developmental stages were passed until finally discharged into the water in the form of cercariæ which swim about on the surface until man enters the water when it attacks his skin, enters, passes to the liver and finally to the portal circulation where the adults pair and finally the eggs reach the respective point of the particular species and the disease condition manifests itself. Drinking infected water results in the cercariæ entering the mucous membrane of the buccal cavity never reaching the stomach where certain destruction awaits in the normal hydrochloric acid.

Recently we have made the diagnosis of schistosomiasis of the hæmatobium type in four cases. We have much more to do before we are ready to publish this report, for there are links in the chain to be added and confirmation by comparison with specimens coming from Europe. We have learned that the necessary snails are all about us and that the disease is prevalent in the West Indies, where it was introduced in the slave trade from Africa three centuries ago. As we have the necessary snail why should we not have the disease if it occurs in the West Indies?

Recently Petillo in SURGERY, GYNECOLOGY and OBSTETRICS, impressed by the work of J. B. Christoferson in the Civil Hospital in Khartoum applied his suggestions to a case of schistosomiasis in this country (originating abroad) with striking results well justifying a careful reading of this paper. Christoferson used one half grain of tartar emetic in 3 or 4 cc. of physiological salt solution intravenously every day for a few doses, then every other day. Each dose was increased by one half grain until 2 or 2½ grains were given. The total dosage was from 20 to 30 grains. The drug kills the parent worms in the portal circulation and sterilizes in situ wherever found. Petillo reports a striking improvement following this technique in a case of bladder infection with the Schistosomum hæmatobium.

TREATMENT OF CHRONIC HEART DISEASE

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(NOTE:—The following is the abstract from which Dr. Vanderhoff spoke.)

It is obvious that treatment of chronic heart disease necessitates knowledge of the etiological factors, etc. (Cabot's classification.)

Also treatment includes attention to many important factors, especially rest, sleep, diet, elimination and general symptomatic relief. Following the relief of cardiac failure comes the question of after care and prophylaxis. Finally we have to consider the use of drugs acting upon the heart, the members of the digitalis group being of chief importance in this respect.

In hospital practice we see many patients enter with broken compensation, altho they have been receiving digitalis; yet, in the hospital, they respond promptly to digitalis thereapy. Why? Partly rest, but not this alone.

Answer: Improper use of digitalis, relative dose, and poor preparation.

How digitalis should be used was tersely stated by Wm. Withering in 1785. "Let the medicine be continued until it either acts on the kidneys, the stomach, the pulse or the bowels." Were this rule followed today much better results would be obtained.

There is too much emphasis in our text-books on bad effects of overdosage of digitalis and contra-indications. As a result of such teaching, many physicians are afraid to give adequate amounts of the drug. In spite of much that has been written and spoken in the past ten years about full digitalization, I have yet to see in consultation a patient with broken compensation who appeared to be receiving an over-dose of digitalis. (Cite case of girl from Florida and proprietary preparation.)

Digitalis acts: (1) To slow heart by stimulating the vagus center in the medulla, to cause (a) diminished rate of whole heart by depression of rate of impulse formation at the sinus, or (b) diminished rate of ventricle alone by depression of auriculo-ventricular conduction. (2) Experiments of Gottlieb and Magnus on isolated perfused heart demonstrate that digitalis increases volume output of ventricles by (a) increasing diastolic filling and (b) increasing force of

systolic emptying. Also changes in T wave show effect of digitalis on the myocardium.

Insufficient digitalis medication is due to two factors (1) weak preparations; (2) too small dosage.

(1) Preparations: Condemn the *infusion* because of (a) its uncertain content and (b) rapid deterioration. (May lose 50% of its strength in 24 hours.) The *tincture* and the *powdered leaf,* as now physiologically essayed (by either the frog unit or the cat unit) are the preparations of choice. The only advantage in certain proprietary extracts is the fact of their careful assay; the disadvantage is their expense. Under the heading of weak preparations must be included the question of their absorption from the alimentary tract. Other members of the digitalis group, such as strophanthus, squills, etc., are too poorly and too irregularly absorbed from the alimentary tract to be of value by oral administration. Strophanthus is many times more active than digitalis. It is usually absorbed from the alimentary tract so slowly as to be practically useless, yet occasionally serious poisoning has resulted from an unusually rapid absorption.

(2) Dosage: In every case of cardiac decompensation it is desirable to digitalize the patient at outset of treatment. This may be accomplished in three ways:

Small dose method: Requires 4-6 days. 20-40 minims of tincture, or 2-4 grains of powdered leaf, administered four times a day and continued until digitalization is produced.

Large dose method: 1-2 days required for digitalization. I dram of the tincture or 6 grains of powdered leaf given every 6 hours, day and night, for four doses. On second day the dose should be cut in half and interval may be shortened to every 4 hours, giving 4 doses in the day and none at night. This latter dose and interval may be continued until full digitalization is secured.

Body weight method (Eggleston): Permits full digitalization in 10-20 hours—in urgent cases. Has practically done away with intravenous use of strophanthin, ouabain, etc. Eggleston has published convenient formulas, in which, using a high grade digitalis (100 mgm. to a cat unit), a patient weighing 150 pounds may receive as much as 22.5 c.c. (about 5 drams) in 24 hours, or 2¼ grams (about 37 grains) of powdered leaves. One-half of this total amount may be administered as the first dose and ¼ of this total amount in two succeeding doses 6 hours apart. If more digitalis is needed, about 1/10 of this total amount may be given every six hours until maximal digitalization is secured.

To use these rapid methods of digitalization one must be certain that the patient has not been taking digitalis just prior to their adoption.

Contrary to the general belief that digitalis is slowly absorbed, it has been shown that a single dose of high-grade digitalis given by mouth is completely absorbed in about six hours. In fact, the electrocardiograph may give evidence of considerable absorption in 2-4 hours.

Now, as to the dangers of digitalis administration. While quite real, yet they have been grossly exaggerated by absolutely misleading statements in most text-books on therapeutics. As a matter of fact, it is really difficult to over-digitalize a patient by *oral* administration of digitalis, because one of the earliest toxic manifestations is nausea and vomiting, so that an excess of the drug is rejected by the stomach.

To be on the safe side, in the matter of overdosage, the clinician should be on the watch for any one of the following signs of adequate digitalization, or of minor intoxication:

(1) Nausea or vomiting (except where due to a pre-existing splanchnic congestion).

(2) Fall of heart rate (not pulse rate) to or below 60 per minute.

(3) Appearance of frequent premature contractions: of coupled rhythm; of definite heart block; or of a marked sinus arrhythmia.

Emphasize the necessity of minims and not drops of the tincture.

Finally, use of digitalis in myocarditis, in aortic regurgitation, in angina pectoris, and in high blood pressure cases. (Vasomotor constriction in experiments due to excessive doses of digitalis.) Also in hearts that are contracting regularly, as well as those that are fibrillating.

Emphasize that digitalis has no direct action on the blood-vessels when given to man in therapeutic doses. When digitalis relieves heart failure it generally increases the pulse pressure due to reduction in the diastolic pressure. Furthermore, recent experiments (Felix Meyer and others) have shown that digitalis does not constrict the coronary arteries *in situ*—as a matter of fact digitalis is generally indicated in angina pectoris, especially as we now know that anginal pains are usually but a symptom of heart failure.

In concluding these remarks on digitalis, it must be realized that every heart case finally reaches that stage in his disease where no further response to digitalis can be secured. Just as we can say that a fever which resists quinine is not malaria, so can we also say that a diseased heart that does not respond to digitalis indicates an exceedingly unfavorable prognosis. In reaching this conclusion, however, we must be certain (1) that an active and absorbable prepara-

tion of digitalis is being employed, and (2) that an adequate dosage is being administered. Furthermore, the indication for the administration of digitalis is determined by the degree of heart failure, and not by the cause of the failure. Finally, in the absence of a satisfactory therapeutic response, one can be certain that digitalis has been given a fair trial only when it has been pushed to the point of producing one or more symptoms of minor intoxication.

DISCUSSION

Dr. J. P. Munroe, Charlotte: Mr. Chairman, I enjoyed the doctor's paper very much and he has given us a very interesting discussion of the use of drugs in the treatment of chronic heart cases. I am sorry that Dr. Hutchenson is not here to read his paper on "The Treatment of Heart Disease Before Decompensation."

It is a very important matter to know what to do with these cases before decompensation and in order to prevent decompensation. Drugs are important but to my mind they are not nearly so important as other matters in the general management of chronic cases. I suppose you are familiar with the clinical classification that is used in some of the large heart clinics in New York and other large places—potential cardiacs, cardiacs with physical signs of cardiac disease without any subjective symptoms, third, cases with shortness of breath and pain and fourth, cases with decompensation. It is a right good idea to have a classification somewhat like that in mind. It is important to know what is likely to occur so far as failure of the heart's action is concerned. I won't dwell on the first except to say we are learning more and more to prevent heart diseases by paying attention to these cases. Why is it, it has become so general now to advise your patient to have tonsils taken out? Why are bad teeth regarded as dangerous? The danger is to the heart. Rheumatism may occur but the real danger is the danger to the heart. But take the ordinary run of cases, cases that have at some time shown there is a mild cardiac weakness. What are you going to do? Don't, for Heaven's sake, some tell you, say anything about anything being wrong with the heart. The proper way is to say you have an organic lesion, which makes it necessary for you to take care of yourself, be careful about your physical exercise and mental strain, be more careful than would be necessary if you were a normal man. Show him the sensible way of taking care of himself, advise him to live on a lower level and especially advise against any physical strain. In that way you get his co-operation. Let him understand that shortness of breath, pain

in the front of the region of the heart, along the left shoulder, the inner side of the arm, are signals to indicate your heart is failing a little, hold up a little. Rest is the important thing, whenever you see anything that looks like failing heart. I have had people say they have been to doctors and said, "My stomach is in a bad fix," who were told to go out and take exercise. I had a young woman who had been going in the garden trying to get her stomach straight. All I had to do was to put her in bed for a couple of weeks, I might have given a little digitalis, but what she mainly needed was rest. Rest, and after that, what? Gradual return to a normal life so far as exercise is concerned. They cannot go out and play baseball and tennis. If he is a man getting along in years he might try golf, but he must do it gradually. He is trained gradually so as to work his arms and legs and the muscles of the heart have to be worked up and restored gradually. Rest, rest in bed, and personally we use morphine in certain cases temporarily.

To illustrate, speaking of syphilis as one of the causes. I like to keep in mind the cause. Don't treat a syphilitic heart as you would other heart cases. I recall sometime ago a man who does not live 100 miles from here, came to our hospital, panting, with shortness of breath, could not lie down, heart dilated, murmurs. What did we do? We put him to bed. We did a Wassermann on him. There was an indication for syphilitic treatment. If there is an acute dilation you cannot plunge in and give intensive treatment as you would in an ordinary case of syphilis. His heart was pounding against his chest walls. He said, "Give me something to let me sleep." Morphine is not bad and we gave him twelve hours of normal sleep under morphine and he awoke ready to start the fight. I am sorry to say syphilitic cases are not very hopeful.

Under the use of mercury and small doses of Neo Salvarsan he improved rapidly and is now able to resume work. We gave him digitalis until compensation was restored.

Dr. J. M. Northington, Charlotte: It seems our generation of doctors are the only ones that use digitalis so sparingly. Withering lays down rules which every one who has attempted to follow has found to produce the desired results. Give in such dose as will definitely affect the pulse, kidneys, stomach or bowels. Austin Flint and Dickson of South Carolina did not hesitate to give an ounce in twenty-four hours. There seems to be a confusion between the minim and the drop. In at least two hospitals in Charlotte I found that when so many minims are ordered a corresponding number of drops are

given. Recently I asked a nurse to bring me a minim graduate for demonstrating the error and after a long time she found one that wasn't being used. It took 140 drops to make a dram of tincture of digitalis. I think we understand since digitalis is usually used in the form of the tincture, and the average dose ordered is 10 minims or ten drops every four hours, the reason why we don't get the expected result is the simple reason the patient is not getting sufficient digitalis. You would not expect to get results from giving a man a maximum of four and a half minims of digitalis four times a day.

Dr. J. Allison Hodges, Richmond: As a corollary of what Dr. Vanderhoff has said and in line with what Dr. Munroe has intimated, I call attention to an aphorism by Clark and emphasized by MacKenzie, which the longer I live and become associated with heart cases the more I am impressed with its verity and its importance, and that aphorism is that "the muscle is more important than the murmur, and the rhythm more important than the rate." I think this is a dictum which all of us should bear in mind in treating almost every patient, especially if there be any suspicion of cardiac complications.

Dr. Munroe has spoken of these potential cases, and this is where we must do our work, and we must have also, the diagnostic ability to be able to class these cases in our further treatment. Any of you who heard Crile's masterly paper at the Norfolk Convention, must know of the truth of this aphorism as shown in our daily practice, and Dr. Munroe has suggested that as an accessory to accomplish this, that morphine be given. I wish to insist that morphine be given occasionally, but be given only occasionally, and be given, if necessary, in a full dose, and not repeated. There is undoubted relief by this rest of the different organs of the body as well as to the main organ, the heart, and it is simply following this theory, that rest in the great majority of the cases, is of the greatest possible benefit.

Dr. A. A. Barron, Charlotte: I just want to emphasize one point with reference to the paper just read and that is the necessity of large doses of digitalis in the cases presenting auricular fibrillation. In cases receiving digitalis, should the occasion arise where a larger quantity is necessary digifolin hyperdermatically every two or three hours makes a very satisfactory method. In this way the patient can soon be digitalized and the toxic effect prevented.

Dr. E. J. Wood, Wilmington: I would like to ask Dr. Vanderhoof if he would be good enough to tell us the value of digitalis in cases

other than fibrillation. MacKenzie still regards fibrillation as the criterion for the use of digitalis and I notice there is a tendency among a great many cardialogists to give digitalis in other heart conditions.

We are grateful, Mr. Chairman, to Dr. Vanderhoof, and, of course, he has brought out the most important single therapeutic knowledge that we have that is exact today, and the great lesson that we can so easily draw from his paper is that a heart murmur is not an indication for digitalis.

Dr. W. L. Dunn, Asheville: I think we are indebted to Dr. Vanderhoof for the very happy presentation of this subject.

I am glad that he has emphasized so strongly the very important point of watching out for digitalization; that digitalis must be given to this point, but that we must watch out for it. It is also well for those who are first taking up the use of so-called massive doses to remember the great weight to be laid upon whether the patient has been previously taking digitalis or not.

Dr. Douglass Vanderhoof, Richmond: I am indebted to the gentlemen who have discussed this paper.

Dr. Munroe emphasized a very important point in the use of morphine. I always remember what the elder Musser, of Philadelphia said, that morphine is our best heart stimulant. It acts, of course, indirectly, by cutting out irritating stimuli, and gives the heart a chance to rest and catch up. The surgeons have been very quick to see this and in their operative work on patients with cardiac disease they have a very definite idea as to the use of morphine in these cases. It is often necessary before, and certainly following operations. I have been very much impressed with the surgical use of morphine where the heart is not normal.

The point Dr. Northington emphasized is a very important one. Digitalis in the form of the tincture should never be given by drops. We try to instruct our nurses on this point. A long time ago I had a patient who was ordered 20 minims. I found the nurse was giving 20 drops. I asked her to take her dropper and drop into a graduate an amount sufficient to make 20 minims. It took 57 drops to make 20 minims. This is, of course, a point you understand but which our nurses do not understand, that the drop and the minim are not synonomous.

The striking effect of digitalis in auricular fibrillation was brought up by Dr. Wood. Some years ago Dr. MacKenzie noted that the auricle gave rise to no contraction and he thought the auricle was

paralyzed. The effect is the same as if the auricles were virtually paralyzed but careful observation subsequently showed that the individual muscle fibers were fibrillating. Under these circumstances we have the so-called P. I. P., the perpetually irregular pulse. The heart will be beating, let us say, 130 times to the minute and the pulse rate will be 90. Only 90 of the 130 contractions give rise to a pulse wave. What does that mean? That the heart is contracting 130 times, but 40 of these beats are abortive and are ineffective because they do not propel the blood. These useless contractions serve to wear the heart out. In our hospital practice we often train our nurses to use the stethoscope. Under digitalis the heart rate gradually falls and the pulse rate may fall or rise but eventually these two lines come together. I want to emphasize that digitalis, while of striking effect in auricular fibrillation, yet is also of great value in patients with regularly contracting hearts. I also want to emphasize one group of cases in which digitalis is indicated, but in which so many physicians are afraid of the drug. That particular group includes arteriosclerosis and angina pectoris. There is a common belief that digitalis is harmful in these cases. As it happens this belief has been founded on experimental work in which enormous doses of digitalis were used. Clinically, I think I can say positively, digitalis in the ordinary full therapeutic dose has absolutely no effect on the blood vessels. It does not increase blood pressure by any contracting effect on the arteries. This point has been discussed over and over again.

We know angina pains are usually a symptom of heart failure. One should not hesitate to use digitalis in angina pectoris if it is indicated. The indications for digitalis, as Dr. Hodges brought out by his aphorism, are not the cause of the heart failure but the degree of heart failure. If that point can be emphasized, certainly we will be able to relieve our patients of very distressing symptoms up to that stage and point at which the heart will no longer respond to any form of medication.

THE RELATION OF THE PHENOL SULPHONE PHTHALEIN FUNCTIONAL KIDNEY TEST AND RETAINED BLOOD NITROGEN TO SYSTOLIC AND DIASTOLIC BLOOD PRESSURE IN THE PROGNOSIS IN CARDIO RENAL DISEASE

William Allan, M. D., Charlotte

In patients with high blood pressure we expect death eventually from cardiac failure, a broken blood vessel, or kidney incompetence. The heart, the blood vessels, and the kidneys are not worn out to an equal degree. How shall we find out in which organ the process is most advanced, so that our therapy may be directed chiefly toward protecting the weakest part? Cardiac decompensation approaches slowly, and can be postponed for months or years. Cerebral hemorrhage generally comes suddenly and unexpectedly and very little can be done to avoid such an accident. Failure of kidney function may come on suddenly without previous clinical warning, or its onset may be more gradual.

The relation of kidney function to arterial hypertension is unknown. A few years ago high blood pressure was thought to be secondary to chronic interstitial nephritis; today failure of kidney function is oftener considered a partial or secondary manifestation of so-called essential hypertension.

In estimating kidney function the usual chemical and microscopical examinations of the urine are worth very little. Serious kidney incompetence may show neither casts nor albumin, whereas threatened cardiac decompensation may show albumin and casts in abundance in spite of very fair renal function.

The Phenol-Sulphone-Phthalein Functional Kidney test of Rountree and Geraghty (1) shows the excretory power of the kidney, but does not indicate at what point in kidney failure, the output falls below intake. What we want to know about kidney function is whether or not the waste products of metabolism are wholly excreted or accumulating in the body fluids. The chemical analysis of the blood for Urea and Creatinin gives us a good indication of whether the kidney is competent or incompetent. In cardio renal cases, what relation does declining kidney function and blood nitrogen retention bear to the increase in blood pressure? Cadbury (2) says that Phthalein output varies inversely and blood urea nitrogen directly with

the average systolic and diastolic blood pressure, but as his tables hardly confirm this statement, I have tabulated my own cases, correlating blood pressure readings with chemical analyses for blood urea and creatinin and with phenol-sulphone-phthalein functional kidney tests.

TABLE

(1) Rountree, L. G. and Geraghty, J. T., 1909, J. Pharm. and Exp. Therapy, 1:579.
(2) Cadbury, W. W., 1916. Arch. Int. Med., Vol. 18, p. 315.

S. B. P.	D. B. F.	P. P.	F. K. T.	BLOOD UREA	BLOOD CREAT.	URINE
210	115	95	.....	180	19.5	Blood & Casts—D
118	80	38	.....	300+	15.0	Alb. & " —D
238	170	68	Trace	90	9.8	Alb. & " —D
210	115	95	24%	86	6.5	Negative —D
140	90	50	.....	169	6.0	Tr. Alb. & " —D
240	170	70	.....	76	6.0	Alb. & " —D
226	156	70	11%	96	5.7	Tr. Alb. & " —D
120	80	40	.....	76	5.5	Alb. & " —D
200	110	90	.....	72	5.1	Tr. Alb. & " —D
215	150	65	1%	54	5.1	Alb. & " —D
208	110	98	53%	36	4.8	Negative
208	118	90	50%	.....	4.6	" —D
270	130	140	.....	20	4.5	"
190	100	90	58%	47	4.4	"
135	75	60	.....	91	4.1	" —D
212	150	62	.....	60	4.1	Tr. Alb. & "
218	124	94	38%	28	3.8	Tr. Alb. & "
234	150	84	27%	36	3.7	Alb. & "
285	140	145	27%	65	3.7	Negative
190	130	60	.....	36	3.4	" —D
240	180	60	49%	42	3.25	Alb. & "
160	110	50	.....	80	3.25	Alb. & "
230	110	120	42%	36	3.2	Negative
186	120	66	49%	30	3.0	"
195	130	65	46%	10.8	3.05	"
210	134	76	.....	27.2	2.9	"
220	100	120	50%	54	2.9	Tr. Alb. & "
278	150	128	.....	42	2.75	Alb. & "
220	110	110	62%	40	2.75	Casts
225	130	95	63%	12	2.6	Negative
240	180	60	21%	18	2.5	Alb. & "
180	110	70	40%	30	2.5	Negative
190	110	80	49%	30	2.5	"
240	124	116	.....	12	2.4	"
230	130	100	55%	27	2.2	"
180	100	80	41%	12	2.2	"
160	110	50	41%	18	2.1	"
170	100	70	60%	42	2.0	"
160	100	60	43%	12	2.0	"
225	135	90	42%	18	2.0	"
165	100	65	45%	36	2.0	"
150	112	38	30%	36	2.0	Tr. Alb.
180	130	50	.....	68	1.9	Tr. Alb. & "
200	110	90	53%	41	1.8	Alb. & Pus
215	125	90	43%	12	1.8	Alb. & Casts
178	65	113	55%	19	1.8	Negative
200	110	90	60%	12	1.6	"
170	120	50	48%	50	1.6	"
178	98	80	.....	25	1.3	Tr. Alb. & "
220	140	80	24%	36	1.1	Negative

The table shows that there is no constant relation of blood pressure readings to either blood nitrogen retention or to Phthalein kidney output.

In reviewing the table, it will be seen that there have been thirteen (13) deaths, in ten of which the creatinin was above five milligrams per 100 cc. of blood, corresponding with the conclusions of Myers and Killian (3) that when blood creatinin is above five milligrams per 100 cc., early death may be expected and that in advanced cases of nephritis the blood creatinin furnishes a more reliable prognosis than any other test we possess.

The first case listed was seen one morning after a convulsion with blood pressure 210/115, blood and casts in the urine, blood urea 180, and blood creatinin 19.5. Even heroic bleeding, purging and saline infusion could not delay speedy death, with such nitrogen retention.

The fifth case was brought to the hospital for intestinal obstruction, but finally his bowels were moved. I saw him a week later in a mild delirium, with vomiting, increased reflexes and some rigidity of neck and back. Lumbar puncture revealed a clear spinal fluid, and his urine showed a trace of albumin and a few casts. Chemical analysis of the blood showed the young man to be an unsuspected case of uremia. The creatinin retention almost eliminates intestinal obstruction at once, as in obstruction there may be urea retention, but not creatinin.

(3) Myers, V. C. and Killian, J. A., 1919, Amer. J. Med. Sc., Vol. 157, pp. 674.

The second case was seen in coma, deeply jaundiced, with clonic convulsions involving the lower jaw, the left arm and leg. The chemical analysis of the blood at once established both the diagnosis and the prognosis.

CONCLUSIONS

Neither systolic nor diastolic blood pressure varies directly with blood nitrogen retention nor inversely with the phenol-sulphonephthalein kidney output. When five milligrams of creatinin and 70 milligrams of urea per 100 cc. of blood are found, the prognosis is grave regardless of circulatory conditions. In coma and delirium chemical analysis of the blood for nitrogen retention gives the quickest and surest information as to the presence or absence of uremia. The value of the information sometimes obtained seems to justify a routine chemical analysis of the blood for nitrogen retention in all cardiorenal cases.

DISCUSSION

Dr. A. A. Barron, Charlotte: I was very much interested in Dr. Allan's paper, because he brought forth several things to which I have been paying particular attention. Since 1919 we have been doing complete blood and phthalein tests on all cases showing an increased blood pressure and in suspicious cases. Checking over these cases, the majority of whom had had an increased blood pressure for at least two years, only about six per cent showed retention or decreased phthalein output. Practically all showed albumin and casts. The systolic and diastolic findings were very variable and no definite information revealed. High diastolic pressure is indicative of continued stress on the arterial system and is more likely to produce renal insufficiency, and retention may follow.

THE VALUE OF ELECTRIC LIGHT IN NEURITIS AND IN INFECTIONS

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The discussion of this subject is purposely intended not to be theoretical, but eminently practical, for, in our opinion, Electric Light therapy in these conditions is undervalued, and usually ignored by the general profession.

This may have arisen from ignorance of the physics of different light rays, or from the apparent difficulty of their application, because of the lack of an elaborate outfit, or from the fact that this method has been employed mainly in Sanatorium practice, where the patients were supposed to be neurotic, and probably receptive to associated suggestive therapeutics.

The result, nevertheless, whatever may have been its cause, has been as unfortunate for the physician, as it has been disastrous to the patient, for its non-employment has often negatived or prolonged many a case that might have been benefited or cured, if the element of time had been properly conserved, and nerve and muscle tissue saved from corresponding degeneration.

It is a well-known scientific, as well as practical fact, that there is a marked physical difference in the wave lengths of different light rays, and that moreover, the length of waves from heated objects is different from that obtained from light, and that there is, also, a corresponding difference in depth penetration of these rays, but it is unnecessary to discuss theoretically these differences, for our object is to set forth clinical observations and to leave to others the physics of this subject.

Also, in our experience, special or colored light rays have no superior advantages over the common Electric light rays, but there is a marked efficiency in these latter over the old method of using surface heat, either dry or moist.

Electric Light therapy is applicable and advisable in both Neuritis and in Infections, but the best results are obtainable in peripheral involvements in both cases. The most notable results that have been obtained by us in Neuritic cases, were those involving inflammatory conditions of the brachial plexus, and in intercostal and sciatic neuritis.

The method of application is practically the same in all cases, a cabinet or body or limb outfit, if available, being the most desirable, but by no means being absolutely necessary, for any single, or multiple Electric bulbs arranged under a simple reflector, will suffice, and will give practically the same results.

These are arranged to focus on the desired area, and the extremity is made immovable, and defended from pressure, and in the case of a Neuritis, is enveloped in a large moist dressing which has been soaked in an alkaline solution of half an ounce of Bicarbonate of Soda to a pint of hot water, and in the case of a local infection, a hot boric acid solution being used instead, and the whole is covered with rubber tissue, and the Electric light applied continuously day and night, the above named hot solutions being added to the dressings every three hours, and the dressings changed according to necessity.

In Neuritic cases, the Electric light application is usually continued for a longer period than in local septic cases, and to meet the special indications, clinical judgment must be used, varying according to the case, though in cases of local infection of the extremities, pain will be relieved almost invariably in the first hour of administration, but the septic processes present, will, of course, require a longer treatment, with, possibly, adequate drainage, also.

It is unnecessary to detail illustrative cases to illuminate the success of this practice, for the result in numbers of cases has been almost invariably and universally successful.

Personally and recently, in both a local Infection and Neuritis, involving the third finger of the right hand, and later an ulnar neuritis, improvement was so signal and striking, especially the relief of pain, although three incisions, two of them through the periosteum, had been of no benefit, that I feel that this method should be brought specifically to the attention of practitioners generally.

It would be foreign to the purposes of this paper to discuss other conditions in which, in our experience, this method of treatment has been equally successful, but we cannot forego mentioning briefly its corresponding success in the treatment of carbuncles, x-ray burns and some joint cases, especially gonorrhœal knee infections, and certain cases of acute neuraligia.

This method of treatment is not believed to be the only, nor the all-sufficient method for treating all cases of Neuritis and Infections, but it offers the following advantages:

First:—It is simple and easily obtained and applied;

Second:—It promptly relieves pain, especially in local infections;

Third:—It shortens the period of convalescence by more speedily stimulating and regenerating the tissues involved.

FURTHER OBSERVATIONS ON PITUITARY EPILEPSY

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In June, 1914, (1) I published a paper on the relation of the pituitary gland to some cases of epilepsy and in 1916 (2) a paper on the subject of hypopituitarism and its relation to epilepsy and in 1919 (3) a paper entitled "The Role of the Pituitary Gland in Epilepsy." In this last paper twenty-eight cases were reported which had been under treatment from nine months to over three years. These cases were 14% of two hundred cases of epilepsy studied and seventeen of them were of the chronic hypopituitary type, while eleven were the transitional hypopituitary type. Only cases which had been under treatment for over three years and had no attacks were considered well. There were four among the seventeen chronic hypopituitary cases which had been under treatment for three years and had not had any attacks for the three years. In the transitional hypopituitary type there were no cases which had been under treatment as long as three years. Two more years have elapsed and in checking up these

(1) Southern Medical Journal, 7:608. August, 1914.
(2) Virginia Medical Semi-monthly 31:1, April 7, 1916.
(3) Archives of Neurology and Psychiatry, August, 1919, Volume 2, pg. 192-200.

cases we find that the static, or chronic, hypopituitary type has responded very much better to treatment than the transitional type. Of the seventeen cases of the former reported in 1919, four had not had an attack for over three years. These four cases have remained well and in addition four more cases have not had an attack for over four years. That is, there are eight cases, or nearly 50%, that have been cured with pituitary feeding. Another case went three and a half years without an attack, then took the pituitary irregularly and had an attack. One had only one attack in two and a half years after the whole gland feeding was changed to anterior lobe. Another case took the medicine irregularly and the attacks continued. In one the attacks became slighter and less frequent. One stopped taking the pituitary and the condition continued. One patient who had two epileptic sisters and one feebleminded brother was not affected by feeding. One had fewer attacks but died apparently in one of his attacks. One case in which the anterior lobe was changed to whole gland extract did not have an attack for 18 months. Two cases were lost track of entirely. If we consider the case which went three and a half years without an attack and then took the medicine irregularly and the case in which the whole gland was changed to the anterior lobe and went two and a half years without an attack we may consider that ten of these cases have been definitely controlled by pituitary feeding.

My impression had been that the transitional cases would respond better to treatment than the chronic or static type, but this proved not to be the case. Checking up the eleven transitional cases it was found that, whereas improvement was gained, there are none that can be considered absolutely controlled by the pituitary feeding from the standpoint of not having an attack for over three years.

Many new pituitary cases have been treated since 1919, when the cases just referred to were studied, but I feel that not enough time has elapsed to use them statistically. However, the proportion of cases with pituitary changes have been about the same and the result of the pituitary feeding, as far as can be told up to the present time, has been equally, if not more, encouraging. At first the cases previously reported in 1919 were put on bromide or luminal in addition to the pituitary, but since then the sedative has been stopped and pituitary alone has been given, and in spite of this it was found that none of the cases have relapsed, and, also, the cases which have not had attacks for over five years have been taken off of the pituitary feeding altogether and in none of them have the attacks returned.

Convulsions, in connection with pituitary tumors, were discussed

by Dr. Cushing previous to my publication in 1914. In fact it was at the suggestion of Dr. Cushing that I undertook the study of the pituitary secretion in its relation to epilepsy. These studies have established the fact that convulsions, which are in no way distinguishable from those of idiopathic epilepsy, occur from under secretion of the pituitary gland. To make the diagnosis of pituitary epilepsy, or better pituitary recurrent convulsions, three essentials must be borne in mind:

First:—The convulsions must make their appearance during the period of adolescence.

Second:—The case must present clinical evidence of hypopituitarism.

Third:—Radiographic evidence of constricted sellæ must be present.

To elaborate these three requirements we shall discuss them in order.

First:—Convulsions occurring during babyhood or early childhood, even if they cease afterwards for a number of years and reappear at adolescence, are rarely of pituitary origin; whereas the majority of convulsions making their first appearance during the period of adolescence are of pituitary origin. It is therefore necessary for us to establish the limits of the period of adolescence. As pituitary secretion has much to do with the onset of puberty, when adolescence is supposed to begin, and as this same secretion may cause delay or cessation of menses, or even an ultimate failure of the completion of adolescence, we are justified in considering the period of adolescence to begin as early as nine years of age and end as late as the age of twenty-five.

Second:—In consideration of clinical manifestations of hypopituitarism several conditions must be borne in mind. The case may be *static* and have shown evidence of hypopituitarism since early childhood, or *transitional*, in which the manifestations of hypopituitarism do not appear until during adolescence. In this discussion we must also consider whether the clinical symptoms are due to under-secretion of the anterior lobe, or of the posterior lobe, or of the whole gland. As we learn that the anterior lobe physiologically has chiefly to do with skeletal and genital development, the posterior lobe, including the infundibulum, with metabolism, especially carbohydrate metabolism, and that the whole gland combines these functions, our problem becomes much simplified.

In the epileptic cases the whole gland is usually affected but symptoms of the anterior or the posterior lobe may predominate. If the manifestations of the anterior lobe under-secretion predominate the

case shows lack of bony development, lack of genital development, delayed puberty and scant body hair and at times spaced teeth and short and broad hands. If the posterior under-secretion predominates, we find vaso-motor mottling, low blood pressure, obesity, lowered blood sugar and increased sugar tolerance. If the lobes are equally affected we have a combination of these manifestations.

In the transitional cases we may have a previous history of normality, or of moderate under-secretion of either the anterior lobe, the posterior lobe or of the whole gland. At times there is even a history of pre-adolescent hyperpituitary secretion shown by precocious genital and skeletal development, or metabolic changes, or both. In these cases there is usually a history of illness or injury which preceeds the acute under-secretion of the gland and, when this under-secretion takes place, the patient usually becomes sluggish and drowsy, the blood pressure gets low, the sugar tolerance is low, the patient takes on flesh, temperature is usually subnormal and genital and skeletal development is retarded.

Third:—There is a good deal that might be said about the radiography of the sella turcica. In all cases where the pituitary is radiographed it is well to take both flat and stereoscopic plates. The bony changes found, sometimes spoken of as neighborhood changes, are clubbing and enlargement of the posterior clinoid processes, elongation of the anterior and posterior processes with at times bridging across the sella turcica and roughening and filling-in of the dorsum sellæ. The gland is thus constricted and we believe the secretion limited.

Reconsidering the whole matter it is felt that it may be definitely stated that there is a group of cases usually termed epilepsy which are absolutely due to under-secretion of the pituitary gland and that the only satisfactory treatment in these cases is the feeding of pituitary gland extract. It may be said that the treatment is much more effective in the chronic static type of recurrent convulsions and that in this type of case from 50 to 75% may be controlled by pituitary feeding. The dosage of the pituitary feeding is from six to twelve grains of the grandular extract daily. In some cases it may be well to give hypodermic preparations, for a short while, in addition. It has also been established that the whole gland feeding is, as a rule, more effective, in the majority of cases, than anterior lobe feeding; although occasionally, if posterior lobe under-secretion clinical symptoms are lacking, the anterior lobe extract is more effective. It may be stated again that pituitary feeding is not effective in cases which

do not conform to the appearance of the attacks during adolescence, clinical symptoms of hypopituitarism and radiographic sella changes.

DISCUSSION

Dr. Tom Williams, Washington, D. C.: Some years ago I reported a number of cases of epilepsy in whom the attacks were arrested without any reference to the pituitary by regulation of the metabolism; and as this is a paper on pituitary epilepsy I would like to offer a few observations to co-ordinate the facts that have just been presented with those I presented some ten years ago.

One of my cases has gone ten years without any further treatment, the basis of which was the taking care of a defective nitrogen metabolism. I would like to ask this question: Is not the action of the gland in these cases, an indirect one, namely, its property of regulating sugar metabolism? I say that with due respect to the cases reported by Dr. Tucker, as we do not quite know the relation between the anterior and posterior lobe secretions. Now, the defective metabolism of nitrogen in my patients was compensated in two ways, eliminating the intake of nitrogen, and seeing that there was sufficient intake of salines and carbohydrates. We know very well, in an edema not caused through organic ischæmia, that this toxic œdema may be made to disappear by the injection of a carbohydrate glucose, which apparently acts by permitting the combustion of the substances circulating in the tissues. In the same way, I believe that by the treatment, which I elaborated ten years ago, of these adolescent epileptics, we introduce a metabolic modification which prevents the formation or the accumulation of nitrogenous products, which, in my opinion, are the cause of the epileptic attacks. I would like to ask Dr. Tucker if he does not think it is possible he is doing the same thing by pituitary feeding, which he finds also removes the epileptic attacks from these patients, and that it does so by freeing the sugar, and thus leading to combustion of toxic nitrogenous products.

Dr. J. K. Hall, Richmond, Va.: Dr. Tucker's paper and the enlightening discussion of Dr. Williams, demonstrate very clearly that the treatment of conditions due to the abnormal functioning of the ductless glands is being removed from the realm of surgery and brought into the field of therapeutics.

I know in medicine of no other condition attended by such profound prognostic gloom as so-called idiopathic epilepsy. Dr. Tucker's work and the work of Dr. Williams in this field with reference to pituitary

disturbance as the probable cause of epilepsy is pioneer work so far as I know. I think both these gentlemen may be right in their observations.

I remember, gentlemen, hearing a paper read by Dr. Wm. A. White, Superintendent of the Government Asylum for the Insane in Washington City, before a meeting of the International Association for the Study of Epilepsy, a number of years ago in which Dr. White presumed to offer an explanation of the epileptic convulsion. He thought of the condition at that time as due to a motor, explosion, a sudden liberation of motor impulses, which resulted in the convulsion. It seems to me reasonable to suppose that, as Dr. Williams suggested, toxins may accumulate in the blood as a result of imperfect functioning of the pituitary gland and other ductless glands, and because of this toxemia, the motor cells of the brain may explode, so to speak, and release motor impulses in overwhelming numbers with the resulting convulsion. Think of the wonderful progress that has been made in the treatment of thyroid disturbances! These disturbances are very much more easily diagnosticated and more easily treated perhaps than pituitary disorders, but we are going to find within the next few years that more and more conditions are due to disturbances of the ductless glands. Some one indeed has already presumed to think of individual character, or personality, simply as an exhibition of the more or less harmonious functioning of these glands.

Dr. A. A. Barron, Charlotte: I have had one case of epilepsy that has remained free from convulsions as a result of pituitary feeding. There is one point I think should be emphasized and that is the necessity of studying closely each case of epilepsy before prescribing pituitary substances. I had one case in which the symptoms present I thought justified the use of the gland substance. I found out later that I had for a short time made her condition very much worse. In studying metabolism of epilepsy in general, normal to slightly increased rates have been found, excepting the one case reported relieved by pituitary feeding, which case showed a minus 18. I would be glad to know if anyone present has made similar observations.

Dr. Tom Williams, Washington, D. C.: Just to say Dr. Tucker reports only 14% of his cases of epilepsy were pituitary. That is, 86% were not pituitary cases. We must take the precaution upon which Dr. Tucker insisted—there must be three cardinal points. The other cases are disordered metabolism from other causes.

Dr. V. R. Small, Raleigh: I would like to ask Dr. Tucker if in any of his cases he has made an examination of the spinal fluid. I am of the opinion that in Pituitary dyscrasias, especially those manifested by a disturbance in metabolism, we should find some disturbance in the sugar content of the spinal fluid. A short time before the outbreak of the war, I began to make analysis of spinal fluids obtained from epileptics. This was accomplished on a series of 60 cases and in none of these did I find the spinal fluid to show any change from the normal in this respect. However, I did not consider any of these cases as being pituitary epilepsy. Incidentally, I would like to mention that in 16 of these 60 cases I did find a large strepto-bacillus which grew readily on blood-serum, bouillon, agar-agar and the spinal fluid itself. This bacillus corresponded morphologically with the "bacillus epilepticus" described by Dr. Read of Cincinnati. An experiment, however, showed it to be non-pathogenic to guinea-pigs, rabbits and puppies. This was about the time that Dr. Read had made his contention that epilepsy was due to a specific organism. I sent Dr. Read several cultures and asked him if he could establish its identity as that of his "pet" bacillus. I was not favored with a reply. Sometime later Dr. Brundage of Columbus, Ohio, informed me that he had encountered the same organism and had isolated it from the blood of old cases of Dementia Præcox. What it was I do not know, but have every reason to believe it was the same organism found by Dr. Read, and which he had thought to be the specific germ causing epilepsy.

I should very much like to hear Dr. Tucker state if he has made an analysis on the spinal fluid of any of his cases, and if so, what were the findings.

Dr. Tucker, closing the discussion: I think Dr. Williams and I are perfectly agreed. The pituitary gland certainly has much to do with metabolism. We must bear in mind, in considering epilepsy, that it is a condition which has been conjectured with and fooled with numbers and numbers of years, and many, many things have been advocated for its relief. I do not claim anything except there are a small group of cases amenable to pituitary treatment. Fourteen per cent of 200 cases had a pituitary relation. It is with the chronic type we get the real results, and I doubt if there are over eight per cent of these cases among epileptics, so it really is splitting off from the whole group a small group, just like we split off a small group due to syphilis, birth, trauma, etc. Of course, after you split off the

different groups the final group is much diminished in size and that is our object.

Dr. Cushings thought the pituitary secretion had a relation to cortical cell stability. This is something that would be very hard to prove. I rather think, myself, nobody can have a fit, whether they have a pituitary disturbance or not, unless they have some deterioration of the cortical cells. In other words, I take it that epilepsy is an organic rather than a functional disease.

Basal metabolism may at times be increased because the thyroid attempts to compensate and you have a mild hyperthyroidism. In considering pituitary conditions we must consider all of the ductless glands. I believe the pituitary is the lead horse, if it were not, it would hardly be situate in a bony cup at the base of the brain and it would not be given a function probably the greatest function of any gland, that of changing the youth into the adult. It is the most protected organ of the body. For these reasons I think it is the leading ductless gland.

In regard to the spinal fluid, I would say we have examined the spinal fluid of most of the cases. I have never accumulated them statistically but I know we have never found any variation from the normal. We have not done any particular sugar tests on the spinal fluid, which I think is a good suggestion and we will try it. Blood sugar we have relied upon.

DRUG THERAPY IN EPILEPSY

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The student of Grecian art and science is cognizant of the fact that about the year 400 B. C., Hippocrates wrote a description of the disease called epilepsy, characteristically describing the symptom-complex with such accuracy that to later writers was left little more than the adding of a few details. Yet, long before the time of this famous Greek, we find mention of this affliction in civil writings. We know that it existed among the ancients, for the earliest records speak of it. Through the following centuries, down to the present time, every generation has known it and, among civilized peoples at least, very few persons have not seen it, recognized it, and had stamped indelibly on their minds a mental picture of its manifestations. It is possible

that through the ages more people have witnessed epileptic convulsions than have come in contact with any other disease, with the probable exception of the usual infectious diseases of childhood. Many students have given it attention, and yet today there is probably no physical or mental disorder, the etiology of which we know less, and for which our treatment is so much based on conjecture and fanciful speculation.

For centuries efforts had been made to treat the epilepsies by sorcery, experimental surgery and empiric medicine. No doubt the early followers of Aesculapius, who regarded epilepsy as a disease due to the retention of semen and who prescribed coitus for relief, found that their treatment met with greater favor among those afflicted than did Hector Bœthius and others, who recommended castration. Galen took the opposite view as to etiology, owing to the fact that seizures often came on during coitus, and attributed the cause to sexual excesses. His followers, therefore, recommended abstinance from sexual intercourse. We read that in the latter part of the sixteenth century, M. Hedoin, physician to the king of France, declared as being most efficacious, a remedy "prepared from various roots and the skull of a man who had died a violent death." Until recently, "snakes' heads soaked in rum," held high reputation in Australia and from this practice could probably be traced the advocacy of crotalin which was extensively tried in our own country within the memory of all.

Thus from time remote to a very recent date, epilepsy has been considered a disease entity and has been theoretically attributed, first to one cause, then to another, and the treatment has been more varied still. We have today advanced beyond the age of sorcery, but we have not entirely abandoned empiric formulas, and experimentation is still rife in surgery. On many points we are as much in the dark as ever before, and today we have no rational basis for the treatment of more than ninety per cent of the cases of epilepsy.

The advancement that has been made has brought us to the recognition of the fact that epilepsy is not a disease entity, having always the same etiology, but rather that it is a symptom-complex that may be a manifestation of widely different etiological factors in different individuals. Thus we have learned to recognize certain cases as being the results of physical traumatism; usually head injuries. We know others to be due to certain infectious diseases; most frequently syphilis. Endocrine dyscrasias undoubtedly account for a certain number of cases, and, when we happily have been able to establish the identity of some etiological factor, we know that we are dealing

with a true case of symptomatic epilepsy and our treatment can be made specific. Yet, when after pains-taking efforts, all the true symptomatic cases have been eliminated from any group of epileptics, there still remain some ninety odd per cent of the cases that must be put down as "Idiopathic" and for them our treatment must of necessity be symptomatic. Eventually, no doubt, we shall be able to eliminate many of the so-called "idiopathic" cases. We are just beginning to seek a cause for this disorder within the psyche of the individual and we may be astounded at what may ultimately be established as eminating from this source.

The chief manifestations encountered in the epileptic, aside from his ill-balanced, unstable, psychopathic personality basis, are: first, the convulsions themselves; second, the periods of mental disturbance preceeding or following the attacks; and third, the terminal dementia. In the treatment of "idiopathic" epilepsy this triad should ever be borne in mind and we should endeavor to aleviate not only the first but the second as well, and at the same time attempt to stay the progressing mental deterioration. However, the symptomatic treatment for the convulsions themselves is the most important, and if they can be checked we often do not have to deal with the periodic mental disturbances and the patients do not dement so rapidly.

If we attempt to correct the underlying disorders of the psyche, it is necessary to use psychic methods, but as this paper was intended to treat of drug therapy, it will be so limited.

One axiom to bear in mind in the care of these cases is that it is always bad for the patient to become constipated. A majority of these cases have a tendency to become so unless closely watched, and in this we should not be negligent. The writer does not favor the continuous giving of mild laxatives, for often the bowel elimination will not be thorough even by their help. The salines are better and small doses of magnesium sulphate may be given twice each week or in some cases, every other morning. It is well to occasionally change the saline used and yet absolute dependence should not be placed on the salines alone. At intervals of not less than a week, and not greater than two weeks, the patient should have a more drastic purge. One or two compound cathartic pills, containing as they do, calomel, colocynth, jalap and gamboge, do very well or often better still, a dose of calomel itself; not a homeopathic broken dose of six or eight tablets of one-tenth grain each, but from five to ten grains, given in broken dosage if you will. Other things being equal, the patient will have fewer convulsions if elimination by the bowel is ever free.

When we find a case that has suddenly begun having convulsions so frequently that there is a threatened development, or the actual existence of "status epilepticus," the chances are that we are dealing with a patient who, for several days at least, has not been eliminating well. Here we cannot wait to obtain action by drug catharsis but must resort to enemas. These should be copious, given by gravity, and as high as possible. When the enema has been expelled, if the attacks have not ceased, our next step should be rectal administration of paraldehyde. In the writer's opinion there is no drug in our medical armamentarium that is so efficient in these conditions, and in his experience it has proved effective in one hundred per cent of cases. Because of its characteristic burning taste and odor and its irritating effects on the stomach, it is better to give per rectum. Apparently absorption is more rapid when it is so given. For adults the rectal dose should be at least four drams, diluted in one-half pint of warm water or salt solution. This should also be given high into the bowel. Usually one such administration is sufficient but, if necessary, it may be safely repeated after three hours or sometimes after a shorter interval. It is safe to push the drug until results are obtained and so long as the patient is having convulsions he has not had too much paraldehyde. We have at times found it necessary to control the convulsions of "status" in children with chloroform until the paraldehyde takes effect. Generally this necessary control is of short duration for when properly given, paraldehyde generally takes effect within from fifteen to thirty minutes.

In 1889, Hare stated in his essay on epilepsy,[1] which essay was awarded a prize of four thousand francs by the Acádemie Royale de Médécine de Belgique, that: "it is to be laid down as a rule that the bromide treatment of epilepsy is 'par excellence,' the treatment employed on every occasion. **** Its use may be said to be indicated in every case of the disease." It is doubtful if this distinguished author, who is a recognized authority on therapeutics, would entertain this view today for, though the thirty odd years that have elapsed since that paper was written have not been especially gainful in regard to the knowledge obtained in the treatment of these cases, yet we have learned the fallacy of prolonged bromide therapy. Anyone who has observed a number of cases in which an attempted control has been made with the bromides, either alone or combined with chloral hydrate, is aware that the temporary beneficial results are more than

[1]Hare, H. A.: Epilepsy: Its Pathology and Treatment, F. A. Davis, Pub., Phil. and London: 1890.

offset by the resulting languid, drowsy stuporous condition of the patient, his impaired mentality, and the hastening of his terminal dementia.

In a paper read before the twenty-third session of the Tri-State Medical Society of Virginia and the Carolinas,[1] the writer spoke of the value of luminal as a drug that may be given over a long period of time. The idea of using this drug was not original with him but was suggested by reports of Hoven,[2] Grinker,[3] and others. After reading the favorable comments on the value of this drug in these conditions, it was decided to try it on a series of cases at the North Carolina State Colony. Fifty cases were selected. These cases varied in age from nine to forty-five years. All were cases of so-called "idiopathic" epilepsy and in no case was there a history of traumatism or any evidences either of syphilis or of disturbances of the glands of internal secretion. The urine was carefully examined before the beginning of the administration and, as a routine procedure, every two weeks thereafter. No case showing the presence of albumin or casts was started on the drug and in no case has an albuminuria or other evidences of kidney irritation developed. As a routine method we gave each patient one tablet, containing one and one-half grains of the drug, at bedtime. A few cases in which results were most striking are as follows:

Case 1.—S. B., Female, Age 16. Attacks since the age of 10. All major attacks and the average number per month before luminal administration was 23. Has been taking luminal for eight months and has had no attacks since taking the first dose of the drug. Has gained fifteen pounds and is mentally very much brighter.

Case 2.—S. M., Male, Age 13. Had been subject to attacks for one year before being started on luminal. Had an average of 17 attacks per month, same being about equally divided between the "grand-mal" and "petit-mal" types. Chiefly nocturnal. Has been taking luminal four months and during this interval has had no attacks. Physically and mentally is very much improved.

Case 3.—M. McQ., Female, Age 34. Attacks since the age of 16. All major attacks and the average number per month before luminal administration was 3. No seizures during the eight and one-half months that she has been taking the drug.

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[1]Small, V. R., Treatment of the Epileptic Insane; Transactions 23d Session Tri-State Med. Ass'n. of Virginia and the Carolinas.

[2]Hoven, Henry; Bul. de la Soc. de Méd. Ment. de Belgique, No. 171, 1913.

[3]Grinker, Julias; Experiences with Luminal in Epilepsy; Journal Amer. Med. Ass'n., 75: 588, Aug. 28, 1920.

CASE 4.—M. B., Female, Age 37. Began having convulsions at the age of 20. Has been in the institution for five years and while there has been subject to series of attacks of from four to ten each menstrual period. All attacks of the "grand-mal" type. Following each series of convulsions there would always be a period of marked mental disturbance which would last for about a week. For three months after being started on luminal she had no attacks. Then had two very light attacks at each of the two following menstrual periods. No attacks during the past four months. At no time since taking luminal has the patient experienced any of her usual periodic states of confusion and excitement.

CASE 5.—A. P., Female, Age 17. Attacks since the age of 2. During the past three years this patient had been having from 3 to 10 hard convulsions in the course of each twenty-four hours. The average number per month during a period of one year prior to taking luminal was 156. Her mentality was almost continuously clouded and she had deteriorated to the point where it was necessary to care for her as for an infant. Luminal has benefited this patient to the extent that she has gained twenty-four pounds in weight, is up and about the ward and is very much brighter. At present she spends a great deal of her time at drawing in which she is very interested, and at which she has shown some talent. She now has an average of three attacks each week but, whereas formerly all her attacks were hard major epileptic convulsions, they are now all very light "petit-mal" attacks.

These are a few of the cases in which the results of luminal therapy have been most pronounced but from this list other cases could be cited in which the effects have been striking.

In this series, however, there were ten cases, or twenty per cent of the whole number, in which there was no appreciable change, either in the number or character of the convulsions. All other cases showed a decided change in this respect, either the convulsions becoming less frequent or the attacks becoming much lighter, or both. In some they disappeared entirely. In several cases, as in Case 5 above, the attacks were entirely changed from the "grand-mal" to the "petit-mal" type. All cases showed a decided improvement in mentality in that they became much brighter and the periodic mental disturbances and clouded states were fewer and of shorter duration or had entirely disappeared. Thus in eighty per cent of the cases of this series there has been an improvement and the entire triad of cardinal manifestations, i. e., the convulsions, the clouded mental states, and the terminal dementia, has been beneficially affected.

What the ultimate results will be, time alone will tell. Our experience with this drug has practically all been within the past year and this comparatively short experience does not permit of prognostication. However, the results so far obtained, merit a trial for this drug in established "idiopathic" cases of epilepsy.

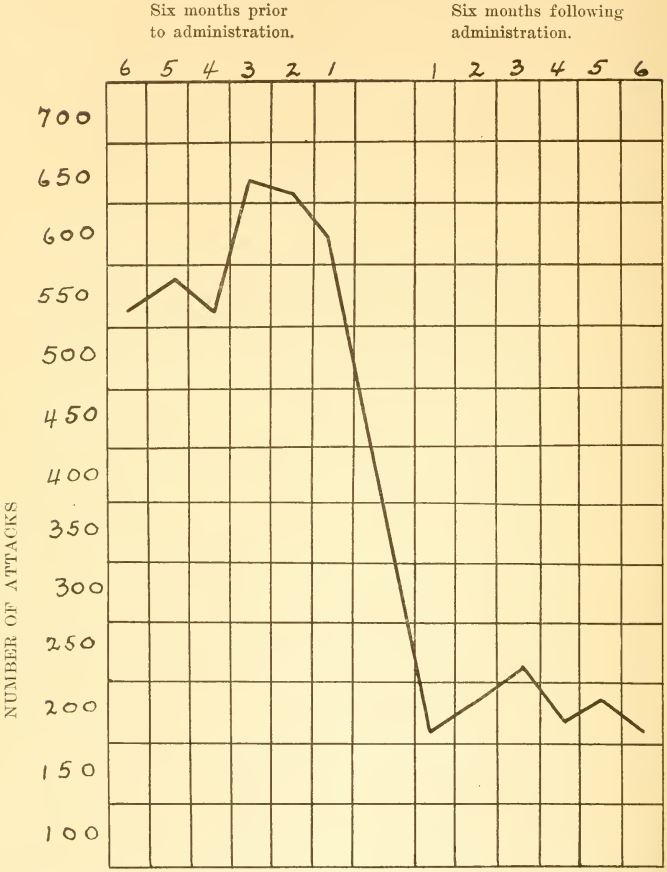

Chart showing decrease in whole number of attacks in a series of fifty cases of "idiopathic" epilepsy.

CONCLUSIONS

1. Before attempting treatment of any epileptic condition, an effort should be made to establish the disorder as being either symptomatic or "idiopathic." If it belongs in the former class the treatment should be specific; if in the latter class the treatment is necessarily symptomatic.

2. In "idiopathic" cases, the factor of constipation should receive attention. Treatment should be directed toward the three cardinal manifestations of the disorder, viz.: convulsions, clouded mental states and dementia.

3. For "status," paraldehyde is the drug of choice and should be given per rectum.

4. For the "cardinal triad," luminal therapy should be given a trial. In the writer's series of fifty cases, eighty per cent responded well to this treatment.

THE TREATMENT OF THE EMOTIONS IN YOUNG PEOPLE

Tom A. Williams, M. B. C. M., Edin., Washington, D. C.

We must define what we mean by emotions. I should take it as a reaction in the body without any reaction upon the environment. Emotions are not under the control of the will. However, we have the power of choosing the impressions which we wish and these together with similar impressions are elaborated into perceptions, which are abstracted into ideas. This we call thinking. Each thought contains both pleasant and unpleasant elements and it is merely a matter of attention which element shall predominate and the one predominating determines the emotions, so in this manner the emotions can be determined intellectually.

Since every emotion is accompanied by physical changes, it is important that a young person should acquire the right kind of emotions. We are familiar with the sagging back, the lack of ambition, which denotes habitual bad feeling, constipation, slow breathing, interfering with the internal organs. When the tone is optimistic the signs are bright eyes, brisk walk, active breathing, good digestion, active mind. The way of looking at things is of utmost importance as has been proved without doubt by countless cases. Long ago Shakespeare made Hamlet say, "There is nothing good or bad but thinking makes it so." People have been said to fail to recover from thinking themselves ill. That is particularly true of the negro race. So that parents cannot be too particular about the way they deal with the feelings of children. If they are brought up with too much particularness, it develops a twist of mind which hinders the chance of success in life and interferes with social adaptation, which brings further ill health. We know infants taken from a foundling hospital to a home have shown betterment of health. This is in a great part due to their response to the kindness which they have in a home, but which they did not have in a foundling hospital.

It is astonishing to those not conversant how early a child grasps responsibility and self-criticism and control. For instance, a boy of two and a half had a habit of throwing a knife at a domestic. When he was seriously spoken to by his mother he restrained for three weeks; then one night an impulse got the better of him and he threw it again. He came at once to his father and mother and said: "Daddy thrash boy, boy throw knife." An investigation as to the truth of this statement was made. After discussion, it was decided to accede to the boy's request and he fetched his slipper and was given the usual punishment. This was a self-imposed punishment. It indicated that he had a strong feeling of the right thing to do; that when he had given way he was thoroughly ashamed of his act and knew that amends must be made. This very strong feeling was so great he even imposed upon himself that which he greatly detested, namely, a whipping. No recurrence of giving 'way to this impulsive emotion has happened for eleven years. This boy's attitude was a love of justice, honesty, courage, and right action in general, and this one thing in particular, the emotional tone being developed toward a desire for justice, although the boy was only two and a half years old. Parents should never lose sight of the fact that in a child who is encouraged in expressing beneficial emotions and has the proper training, the emotions as an adult will take care of themselves.

We doctors, however, have to deal with the emotions of people which have made them sick; and the question of rectifying the emotions presents itself. I have under observation two young women in a finishing school in Washington, in each of whom there is a lack of adaptation. In the one case it is the desire for affection which is shown somewhat impulsively and meets with rejection in consequence. The girl, however, has her social adjustments much helped and is able to continue in school, much to her benefit. The other is hypo-pituitary and has been under treatment for two years; she was adjusting badly, wanting to leave school and go on the movie stage, being so beautiful a child. It was necessary to penetrate into the girl's character, a very difficult thing to do, as she is very uncommunicative; and then to make a disposition so that she would acquire different ideals. In that way adjustments were made.

When that is done, emotions take care of themselves unless they have become habits, in which case they must be dealt with psychologically.

In other cases difficuties are bodily inadequacy or disease such as created by anemia. It is frequent in young people to find a low red blood count to be the cause of a general inadequacy at work and play.

This recovers spontaneously after the anemia has been cured unless it has led to faulty habits of doing, thinking or adapting. If so, these must be reconditioned, a simple and rapid matter in skilful hands, but in danger of being sadly bungled by the unskilful.

Among the emotions jealousy is a frequent cause of disturbance in the young. It is quite easily dispelled if dealt with wisely and explained to the child. I might cite a number of cases. A very frequent emotion is that caused by excessive diffidence, nearly always induced by injudicious management. A young woman because she was said to have a large mouth endeavored to talk with a small mouth and thus disfigured herself and her speech so that she was unable to take part in the dramatic exercises, which would have been beneficial to her. In that way her whole life was distorted and through a series of misfortunes she lost her life.

In another case a young man was imbued with the idea he could not learn the classics and for this reason he led the life of an artist, for which he was unfitted, whereas he would have excelled in science, which required preparation in the classics. This was through the feeling of diffidence which he had, induced by the contempt of an older brother.

In another case the son of a senator who was so doubting about everything he did he could not dress himself in the morning—thirty years of age and still had to be dressed by his father or mother or both. Sometimes it would take two or three hours to get him dressed. This man had been made diffident by the over-protection of his parents. When gradually I induced them to relax their solicitude he developed so that after two years he was able to handle himself in life, by managing a farm.

Of course, the commonest of all emotions is fear. (See Psychogenetic Disorders in Children, Amer. Jour. Med. Sci., 1912.) Many will remember the lady who feared wild animals would jump on her back, whose impulsions were taken for epilepsy. One interview led to control of her impulsion. Also a little girl who would sit on the stairs for hours because she was ashamed to say she was afraid to go to bed alone. She sat on the stairs until she heard the other members of the family come to bed, when she would run and jump into bed and pretend to be asleep when they entered the room. The result was a state of ill health, so that she was supposed to be a frail, ailing child. When the fear was gotten rid of, which took about two weeks in Washington, she was able to go to school, which she had never been able to do before, and she became a strong, vigorous young woman. (Management Nervous Children, N. Y. Med. J., Jan., 1916.)

All these instances (and I could give a great many more) are simply examples of how not only disadaptation, but chronic ill health can be induced by emotions which are purely psychological. Such disabilities are being removed currently. The patients are taught to adjust themselves to life, the health gets perfectly well, and they are able not only to adjust themselves but to be well and strong. We have simply to consult the experimental evidence which was created for us so strikingly by Pavlow's dogs, to show how very intense may be the modification of secretions by the emotions imposed from without. In human beings emotions may seem to come from within. In reality the emotional state has been induced generally in childhood by a set of sensations which are elaborated into perceptions, which are elaborated further into ideas, memories, which carry with them painful, distressing emotions. When these are called into being by stimuli from without or by the ruminations of the mind from within, by dreams, or by the body itself, we have the disturbances which make the person unfit, and which gives rise to a failing of health, the cause of which is sometimes not perceived because the family or friends are used to seeing the child like that: they think it is his nature, when it is really an emotion which can be removed in a short time by a skilful neurologist.

ON REBELLION AGAINST OPPRESSION

James K. Hall, M. D., Richmond, Va.

As a consequence of inability to discover an underlying pathologic physical condition as a basis for many psychoses and neuroses, practitioners in these fields have been forced to view many manifestations once regarded as symptoms now as genuine disease entities. Keen recognition of this fact by many outside the medical profession has made possible the growth of the various kinds of mental healing. Physicians have been forced by these unlicensed practitioners to realize that the mind itself may be sick, and that when disordered, treatment should be directed to it and not to some healthy organ of the body.

The problem presenting itself, therefore, to neurologists and to psychiatrists is to differentiate physical nervous or mental disease from psychological nervous or mental disorder, and to apply the indicated treatment. Disease of organic origin, however great may be the associated mental or nervous disturbance (for example, paresis), must be treated as a physical disease. On the contrary, psychological disease, if I may be permitted to use the term, should be treated as

such. Hysteria, for instance, is not amenable to curative influences by surgery or by the exhibition of drugs.

This new method of viewing and of treating many of the co-called functional nervous and mental diseases, to which I would very briefly call your attention, is now known as psychoanalysis. It has become both an art and a science. It is both old and new. To some vague degree it has been known since the early days of human history and to some extent it has long been made use of in arriving at the mainspring of human conduct. The believer in psychoanalysis believes in evolution as applied to the mind as firmly as in the theory of physical evolution. He asserts with absolute positiveness that thought springs from thought; that idea begets idea, and that speech and behavior. manifestations of ideation, are always absolutely predetermined. It is probably true beyond reasonable doubt that the mental development of the individual reproduces the various mental phases through which the race has passed in its ascent. This charitable view of one's own animal-like impulses, at times, may be made use of in attributing them to unavoidable inheritances. Psychoanalysis traces back in the individual to their remotest origin all thought processes, and in certain morbid conditions it undertakes to bring about mental normality by correcting and properly balancing disordered or antagonistic mental manifestations.

This method lends itself to investigation of any mental process, normal or abnormal, for the two differ only quantitatively and not qualitatively. In normal mental functioning—which, by the way, does not exist—the intellect keeps the feeling element in some sort of check; in abnormal conditions feeling colors too heavily the intellectual processes. William James, in that delightful little address, "A Certain Blindness in Human Beings," says: "Our judgments concerning this world of things, big or little, depend on the feelings the things arouse in us. If we were radically feelingless and if ideas were the only things our minds could entertain, we should lose all our likes and dislikes at a stroke, and be unable to point to any one situation or experience in life more valuable or significant than another. Now this blindness in human beings . . . is the blindness with which we are all afflicted in regard to the feelings of creatures and people different from ourselves."

This matter of feeling causes one at times, willy-nilly, to view certain mental processes in such a light as to give rise to morbid conditions known as distinct diseases. All the neuroses and psychoneuroses and some of the psychoses, perhaps, are due solely to conflicting thought processes, but thought processes heavily impregnated by feel-

ing. The modern theory is that every psychoneurotic symptom is a disguised manifestation of a repressed wishfulfilment. Two trains of thought, more or less antagonistic, are seeking to express themselves. One thought may carry with it the idea of shame, disgust, and loathing, and be repugnant to the individual's so-called better self. His mental and moral censor, therefore, forces it down; submerges it; puts its out of consciousness, or, as we technically say, it is repressed. It is forgotten, but not dead, and, like hidden infection, it may emerge. In the psychoneurotic the repressed wish does reappear, but so twisted and distorted by the strong censorship placed upon it that its manifestation is unrecognized by the individual. The theory has been enunciated by Freud, the founder of this new psychology, that these repressed wishes are in every case of a sexual nature. We must remember, however, that Freud uses the term in the broadest possible sense, and that the reproductive act is but a single manifestation of this important part of the personality. In this broad sense the term is the mainspring of practically all human activity, and it is almost synonymous with Love. In this connection, Ernest Jones quotes Freud practically as follows: "Under certain circumstances, sexual excitations arise that cannot follow their natural course of leading either to physical gratification or conscious desire for such. Being deflected from their aim, they manifest themselves mentally as morbid anxiety; physically, as the bodily accompaniments of this."

From this new point one sees in morbid anxiety a manifestation of repressed sexuality, disguised, to be sure, from the individual. Desire that cannot go out and find its mate, so to speak, turns in, and what the patient really constantly fears is an outburst of his own illicit longings. It is but another evidence of that wonderful defence-mechanism with which we are so well, or so badly, as we may think, protected. Inflammation and pain subserve the same sort of protective function in the physical domain, yet either may bring about invalidism, and not health. This mechanism underlies the production of all hysterical manifestations, all the obsessions, and the phobias of various kinds. Patients are loath to let go their symptoms, because it is by this method alone that many of them secure sexual gratification. The fact that the individual is unaware of the cause of the condition does not affect the validity of the statement. Much physical ill health is due to organic causes not distinctly localized and not even suspected by the individual.

Sexuality is far reaching in its influence, and the advocates of the psychoanalytic theory may not be going too far in asserting that in an individual sexually normal a neurosis or a psychoneurosis cannot

arise. The ultimate origin of these conflicts is placed in early childhood, and the assertion is made that in all such conditions as those referred to the sexual trauma has taken place before the fifth year. Sexuality in the broad sense begins probably with consciousness. It is not directed, however, toward reproduction until the so-called age of puberty is reached.

The assertion that children are essentially animals, for a time at least, devoid of all moral sense, should not provoke criticism. In the early days of individual human life all thought is absolutely selfish. The child thinks only of its own comfort and pleasure. Altruism is unknown, both in word and in deed. Individual civilization; refinement and culture, come largely through repression of biologically inherited animal instincts. Repression is preached to the child in the home, in the school, and from the pulpit. For the first years of life children's ears are more familiar with the phrase, "Do not," than with any other.

The importance of childhood cannot be overestimated. Much earlier in life than any of us are aware the mental and moral tendencies develop which are to govern us during the remainder of our days. John Fiske has written an informative essay on the importance of childhood as the developmental period of personality, in which he calls particular attention to man's slow and tedious approach to maturity in contrast to the rapid maturity of the young lower animals. Solomon says that "Even a child is known by his doings," and nothing can be more important than the command of this wise man: "Train up a child in the way he should go, and when he is old he will not depart from it." How can he? When once moulded, how can the form be changed?

Repressive influences from various sources are constantly brought to bear on the adult race, just as inhibitive influences are exercised over the child in a more restricted field. We are, as a race, inhibited in our tendencies by regard for the opinion of our fellowman, by law, by religion, and by conscience—that quality, whatever it may be, which made Socrates drink the poison rather than run away from death. All government, of whatever kind, is based on this repressive action—the need from the point of view of the general good of suppressing most of our primal tendencies and desires. Autocratic government leaves the censorship in control of one, or, at most, a few; democratic government aims to leave the censorship with the individual; but there never has been and never can be absolute democratic government. Individual liberty is unknown.

The tendency everywhere nowadays is, I fear, to pay less attention to the individual and more attention to the mass. Conscious inhibition or unconscious repression reaches a certain point, however beyond which it cannot go. In the mass, when this point is reached, individuals bolt the caucus, strikes occur, rebellion takes place, and war is declared against the repressing force. These reactions against extreme repression in organized society are analagous to neurotic symptoms of repression in the individual. But we are slowly becoming wiser, and, when organized signs of social or political unrest arise, conferences are held between the sensor element and the repressed element. Deliberate search is made for the cause, and, when found, it is removed or made less active, and in this way political and social health is restored.

By two or three different processes effort is made by this psychoanalytic method to diagnosticate neurasthenia, anxiety states, true hysteria, and conditions manifested by various obsessions and phobias. Explanation of the process is made to the patient, whose hearty cooperative must be obtained; and the patient's full confidence in the examiner must be established. To begin with, the usual sort of history may be obtained, but a history which looks more deeply than usual into the individual's moral and psychic life. Action is traced to idea, and idea to idea. The patient is asked to relate all his dreams, for no other process reveals so intimately the inner life of the individual's mind. In the dream, the patient realizes what he subconsciously longs for in his every-day life. Notwithstanding the unintelligibility to the individual of most dreams on account of the protective use of symbolism, no dream is without deep meaning, and those dreams related most reluctantly, because of their apparent absurdity, or because of their gross character, are generally of most value. Dreams attended by fear are said to be essentially of sexual origin. Another method of reaching the subconscious mind is through free word association. A long list of selected words are repeated one by one in the patient's hearing, and he is asked to respond promptly without restraint with the first word suggested by the examiner's test word. These same words are repeated day after day, and, if the patient always reacts with the same word, it is safe to assume that that particular word represents to the individual an abiding and a more or less dominant subconscious thought.

By this method, and by close observation, it is possible to arrive at an intimate knowledge of the personality. It is possible even to find in subconsciousness the origin of motives unsuspected even by the individual. In the inscription, "Know Thyself," carved above

the doorway of a Greek philosopher, the implication is clear that no one really knows himself, and that an intimate knowledge of one's self would embrace all knowledge. Consequently, psychoanalysis can be used with value on one's self, if one can be honest with one's self. By it one can search the heart either of self or another. Freud says, "He who has eyes to see and ears to hear, becomes convinced that mortals can hide no secrets. Whoever is silent with the lips tattles with the finger tips; betrayal oozes out of every pore."

But, one may ask, "Canst thou minister to a mind diseased" by such a method? How is it done? The helpfulness of the method, the therapy of the procedure, is based upon the idea that hypocrisy damages, that concealment hurts, and that the repressed longings and desires, whether they be within the patient's knowledge or hidden beneath consciousness in the subconscious, act as irritating foreign bodies in the mental or the moral domain. Unknown or unrecognized, they fail to enter into the stream of thought; they are not assimilated; they remain outside the healthful every-day life to vex and to harass. When these unknown or hidden causes of symptoms are brought face to face with the patient they generally disappear; become absorbed into the stream of healthy daily living, and are forgotten; or else they become transformed into ennobling impulses—sublimed, we say—and the individual is afterwards, in the language of the street, "a different person."

Sublimation of this sort is the wonder of the world. The once gay, giddy, selfish belle becomes sublimed in spinsterhood into the leading figure in all good works; the wild and carefree medical student becomes transformed into a staid and responsible member of a noble profession; the neurotic becomes transfigured into a sane and happy being; Jerry McAuley emerges from the Bowery thug into the powerful preacher; and by the sublimation of persecutory zeal Saul of Tarsus becomes one of the most heroic figures in human history.

Francis Bacon never wrote more wisely than in those lines: "Physicians are some of them so pleasing and conformable to the humor of the patients as they press not the true cure of the disease; and some others are so regular in proceeding according to art for the disease, as they respect not sufficiently the condition of the patient." It would be well for us as physicians to realize that the Kingdom of Heaven is within, and that suffering and misery and sorrow and despair, even death itself, may come from a mind disordered. And is it not time for us to think of other means of righting some of its disorders than by knife and by drugs? Can we not understand that riches and un-

happiness may abide in the same house; and that joy and gladness may be unacquainted with stocks and bonds?

What wonderful diagnosticians we might be if only we could see deep into the situation with the clearness and the penetration of Nathan, and so be able to exclaim—"Thou art the man."

NEURASTHENIA

W. C. Ashworth, M. D., Greensboro

(Read by Title)

Neurasthenia is a sort of blanket term to cover our ignorance of some functional nervous disorder which we find difficult to diagnose without careful and painstaking examination.

It is well known that the general practitioner has neither the time nor the disposition to make more than a superficial or desultory examination of his nervous patients. It is our usual custom to follow the line of least resistance and dismiss them as quickly as possible for cases that are more interesting, and certainly more easily diagnosed. The average neurasthenic is so pessimistic and self introspective that it is difficult from an ordinary examination to obtain a true conception of his ailment. It is for this reason that often palpable errors are made in the diagnosis of obscure nervous diseases. The utter failure of the patient to visualize or maintain a hopeful expectancy is so deeply seated in his nervous organism that more than mental suggestion is required to help him out of the "slough of despond." Neurasthenia is usually defined as a condition of nerve exhaustion or nervous debility.

The subject of neurasthenia is of so much importance that no attempt can be made to present it adequately before this Society in the short length of time allotted me for the reading of this paper. A brief statement, however, of some general principals involved in mental and neural pathology may help to explain the nature of the group of nervous symptoms known as "neurasthenia."

In the progress of the medical sciences the provision in the schools and hospitals for the study and treatment of neurasthenia is only beginning to receive proper attention in this country. The methods taught have been essentially objective, while the subjective, which are vitally important in psychopathological or psychoneurotic cases, have received but comparatively recent and limited recognition. In his clinical work the student is taught the refinements of the diag-

nosis of physical diseases. Such objective methods cannot in their very nature be employed in neurotic disorders of a functional character, hence the physician, with all his long years of training in our medical schools, feels helpless in all cases of neurotic disorders, both in theory and practice. He is forced to fall back on drugs and other mechanical treatment without even so much as diagnosing his case.

The symptom complex is grouped as a rule around a pathological nucleus, which controls and guides the morbid manifestations. In a well developed case of neurasthenia the dizziness, faintness, nausea, acid stomach, etc., the headaches, the anæsthesia, hyperæsthesia, the fatigue, insomnia, and general depression, bear severally a definite relation to some pathological focus, which the psychopathologist must find by a searching examination before an effective treatment can be undertaken.

The pathological focus, of which I speak, may more properly be expressed as a residual organic habit in the neurone or nerve cells. From this focus there develops the complex. The patient may have days or weeks or months of apparently normal health when there breaks upon the consciousness a feeling of depression, of nervousness, of restlessness, and probably an inner sense of excitement. With these symptoms the patient's appetite is gone, an actual disgust for food may develop accompanied by constipation or possibly diarrhea. A very important characteristic is the periodicity and remission in the appearance of the symptoms. In order to diagnose these cases correctly it is necessary for the physician to see the patient as a whole and not alone his physically disturbed functions.

The causes responsible for the disease are about as varied as the premonitory symptoms. In some cases the disease results from some severe infectious disease, which is especially true in tuberculosis, and in other cases we find some general organic condition, such as diabetes, nephritis, constipation and resulting auto-intoxication, and pelvic disease in women, etc. It may follow severe traumatism, overwork, and mental or emotional strain.

We must reckon, however, with another causative factor, deeper lying and more hidden, which allows the exciting cause to become pathogenic. This deeply rooted hidden factor cannot be looked for elsewhere than in a special predisposition on the part of the nervous system.

Of the symptomatology of neurasthenia will mention constant fatigue, disinclination for effort, either physical or mental, loss of will power and the power of concentration, nervous irritability, hyperactivity of reflexes, insomnia, headache, vertigo, tinnitus aurum, heart

palpitation, etc. In some cases we observe marked mental depression alternating with periods of abnormal excitability or exhilaration without apparent cause. Chronic fatigue is the one pathognomonic symptom of neurasthenia. All neurasthenics complain of fatigue and indescribable lassitude, which is present as soon as the patient wakes in the morning and remains throughout the day.

Neurasthenia due to prolonged physical strain has been comparatively rare until within the last few decades, or since life of the average individual has become so strenuous. It requires an exceptional nervous system to escape or pass unscathed when it is necessary for the individual to meet a succession of exigencies, whether of business or social life.

While it is true that strong and normal men sometimes break down under the nerve racking conditions of modern life it is only natural to suppose that those of neurasthenic tendencies or antecedents would give way sooner under the pressure of existing conditions. It seems to be the almost universal opinion of medical men that some history of a neurasthenic's constitution or inheritance is to be found in a large per cent of cases. It is authoritatively stated that only about one-third of the cases of neurasthenics or hysteria develops in the potentially sound individual. It is obvious that a disease would more readily develop in individuals with neuropathic inheritance, and those who are abnormally emotional, or have previously suffered from a nervous breakdown, or concussion of the brain as a result of injury to the head.

Our recent world war developed many neurasthenics. It may seem rather paradoxical that a large per cent of the men who developed neurasthenia during our late war were men remarkable for their bravery, daring and initiative, with undaunted courage and valor. It is also worthy of note, and of medical interest, to know that well seasoned soldiers often manifested the same symptoms of neurasthenia as the young or new recruits. The above fact can only be explained by taking into consideration that the victim of neurasthenia was temperamentally and neuro-potentially unfit for the strenuous work which they volunteered to perform. It is well nigh impossible for the physician in civil life to differentiate between who is and who is not a potential neurasthenic. If the medical fraternity had possessed this knowledge at the outbreak of our world wide conflict we could have prevented much wastage of the personnel in the fighting lines, the lowering of the morale of the men in active service, and the denuding of the country of men, useless in the field yet capable of valuable work at home. It is not reasonable to suppose that the potential neur-

asthenic would endure cheerfully the privations and hardships of army life, nor could we expect the neurasthenic to be fired with the spirit required to be a good soldier.

The successful treatment of neurasthenia is about as difficult as the diagnosis. We should make a careful and painstaking examination for any physical or organic condition causing or complicating the neurasthenia, and if such conditions are found they should be given proper treatment, whether medicinal or surgical. If organic causes of the disease can be eliminated the treatment of neurasthenia should embrace rest and isolation, massage, electricity, hydrotherapy, force feeding and the use of appropriate drugs.

The personality of the nurse in charge of neurasthenic cases is of vast importance. A nurse should be selected who is tactful, resourceful, and one who can preserve an equable, cheerful demeanor, and can divert the patient from his gloomy forebodings, and morbid introspection.

The physician should impress his patient with confidence, and if possible make him believe that he fully understands his symptoms, and that he is going to get well regardless of any relapses that may develop during the course of his disease. If relapses arise the physician should be tactful enough to forecast them and be firm in his opinion that the final prognosis is unchanged.

It is absolutely necessary for the patient to be relieved of all business cares and worries, and live a perfectly hygienic life in every respect.

In reference to diet, the food should consist of an abundance of milk, cream, eggs, farinaceous food, fruit and vegetables, until the patient is sufficiently strong to leave his room, when the ordinary well balanced diet may be resumed.

It is imperative that the patient refrain from the use of alcoholic stimulants of every description.

The length of time which he should require for rest in bed and isolation is often difficult to decide. It has been my observation, however, that only a complete physiological bankrupt should remain in bed for any protracted length of time. With the majority of cases I have observed that three hours daily, exclusive of the night, is usually sufficient for the average neurasthenic case.

Fundamental re-education of the patient with rehabilitation of his bankrupted nervous system is the essential part of the treatment It is important to teach the neurasthenic what is meant by neurasthenia, and teach him to contrast his present state of mind with the normal, and to show him that he can attain normality. I cannot

emphasize too strongly the importance of re-educational psychotherapy combined with rational physical treatment, based on the particular need of each patient. This part of the treatment, if carefully followed according to a definite schedule, will play an important role in the final outcome of the case. I have further observed that occupation, both manual and intellectual, is important in the re-education regime.

The factor primarily important in the treatment is to regulate, not so much what the patient shall eat or drink, but what he thinks. The whole man must be treated. His whole personality must be closely observed, and when the cause of the nervous disorder has been removed the physical disturbances will of themselves disappear.

Want of time forbids me even to mention the many and varied forms of stomach and intestinal disorders directly due to nervous and emotional disturbances.

RADIUM THERAPY

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(Read by Title)

A cancer is a horrible thing.

It destroys each year, one out of every eleven women and one out of every thirteen men.

The lives of many researchers in all the civilized countries on the globe have been entirely devoted to the study of its etiology and cure, without great success.

In the past twenty years many brilliant operations have been devised towards its removal and almost equally as many agents have been utilized in a desperate attempt to check its progress, or to stay its course.

Still it marches on, as a general rule, and even when removed entirely by a bold and courageous surgeon, its general tendency is to recur at some future date, and to ultimately destroy its victim.

In December past we saw a male patient aged 62, from whose lower lip the late Dr. Merriweather of Asheville, in 1909 had removed a carcinoma by a surgical operation. In October, 1920, eleven years later, the gentleman noticed a reappearance of the lesion in the old scar.

On the twenty-fourth of February of this year, we were consulted by an elderly man, from whose nose my father, Dr. H. R. Black, of Spartanburg, removed a malignant area fifteen years ago. The wound healed and remained so till January, 1921, at which time it reappeared close to the old site.

Any thing in medicine or surgery that will apparently remain entirely well for ten, fifteen, or more years, and then break out afresh in all its vigor, is truly a relentless enemy with which to do combat.

Is a person ever cured of cancer? Yes, it is possible, but one never knows definitely that it will not recur.

In more recent years, since radium has been popularized by many workers with their brilliant reports of cases improved, arrested, and cured, persons with malignancy have taken a new lease on life and many of them now come for this form of therapy with the utmost of confidence.

As to whether or not some of the lesions which have been removed by radium, and which have remained well for several years will reappear at a later date, as did the two above mentioned operated cases, only time will reveal.

Radium is not a specific for cancer. Unfortunately such a substance is not known. However, when it is used alone or when possible in conjunction with some other accepted procedure, the ultimate outlook is more pleasing and the profession today is better able to care for its malignant cases than it has ever been before.

Malignancy of the larynex, of the tonsil, and naso-pharynx as well as of the esophageous does better under radium therapy than under any other known treatment.

Sarcomas of the tonsil and of the naso-pharynx melt away and entirely disappear with surprising rapidity under this form of therapy. Such lesions varying in size from pigeon to hen egg dimensions, will vanish in from two to four months after heavily buried radiation.

In treating malignancy of the antrum of Highmore, or of the inner surface of the cheek and jaw, the best results are obtained by thoroughly cauterizing the lesion and adjacent tissues, after preliminary radiation.

At the time of the cauterization remove any tooth or teeth which interferes with the approach of the cautery to the lesion.

By cautery, we mean an old fashioned soldering iron or some other similar object, and not a fine pointed so-called cautery point, as is heated by gasoline and so commonly used in the clamp and cautery

operation for hemorrhoids. These latter are incapable of carrying sufficient heat for penetrating purposes.

Immediately following the cauterization insert fifty to one hundred milligrams of radium into the burnt area and leave for eight to twelve hours.

Repeat this dosage three times within four weeks and upon dismissal of patient instruct him or her to return in three months for observation.

In addition to the above, the patient should have x-ray or radium therapy over the glandular area of the neck or a block dissection of the cervical lymphatics, followed in time by either or both of these agents.

Epithelioma of the lip, springing from the mucus membrane is a squamous cell cancer and requires considerable more radium for its removal than does the basal cell type which comes from the skin side.

The best way to treat such a lesion is to cross-fire it by putting a portion of radium on the inside, an equal amount on the outside of the lip with proper screenage, distance and time exposure.

After three initial exposures, if one wishes to do all possible for the patient, then excise the growth and approximate the raw edges with suture.

When the wound has healed and the blood supply proven adequate, give more radium over the scar. Then remove the glands of the neck or give 5,000 milligram hours of radium each of its sides from the mandible to the clavicle.

Within the past two weeks, we have discharged on three months probation, an elderly woman who had a large destructive sore of malignant origin on her left cheek, just below the eye. A few exposures to radium arrested the process and the wound healed rapidly with very little scar formation.

In November, 1920, we dismissed a male patient who had a similar lesion on his right cheek, the circumference of which equalled or exceeded that of a silver dollar. A few days ago, he reappeared with a fresh spot near the periphery of the old lesion and he is now getting heavier doses than he formerly received. This recurrence was no doubt due to insufficient radiation at the initial exposures.

Some four months ago there came an aged male subject with a large deep ulcerated area between the scapulæ which measured 4½ inches in length, 2½ inches in width and which extended down to the tips of the spinous processes of the thoracic vertebræ. Microscopic diagnosis of a removed section was carcinoma.

Following three exposures of 200 unscreened milligram hours, each given at an interval of five days, this ugly sore began to clean up, and to take on a more healthy hue, and at the end of five weeks, the entire area had entirely healed. When seen one week ago, there was a perfectly united and healed wound covered with a soft, pliable scar.

Cancer of the breast is another field in which radium is of great assistance, both to the patient and to surgery.

Many radiologists treat all cases of cancer of the breast with radium alone. They report two, three, and four years freedom from recurrence.

An insufficient number of cases have been recorded in detail to definitely determine as to whether radium alone or radium and surgery combined will give the bigger per cent of so-called permanent cures.

At present, we feel that all these cases should first be adequately radiated, then if they are at all operable, or can be made so by means of radiotherapy, applied for from three to six months or longer, the breast and pectoral muscles should be removed with complete axillary dissection, and that the wound should be closed with radium capsules buried for twelve to fifteen hours in the axilla itself.

Subsequent x-ray and radium exposure should be given in every case to insure the greatest possible chance of permanent cure.

A uterine cervix diseased with cancer constitutes one of the most fertile fields for radium therapy.

Grossly advanced and totally inoperable cases will in many cases completely dry up and entirely disappear.

Radiologists now have cases which were pronounced totally inoperable by most competent and courageous surgeons, alive and apparently perfectly well, three years and more after their initial treatment.

Every case does not turn out so favorably, of course, but if only one out of a hundred or even out of a thousand so afflicted, can be cured or even helped, then radium is well worth while.

In closing, permit us to mention the almost invarying success with which radium stops the flow and completely controls uterine fibroids, when uncomplicated by adnexia pathology.

It seems that hysterectomy for relief of this condition is to be done away with, and more quickly so, when the women, themselves, learn that radium with its freedom from anæsthesia, from post operative pain, nausea, vomiting, and the ever lurking danger of pneumonia, peritonitis, and intestinal obstruction, will do all that will the aseptic scalpel.

THE PHYSICAL PROPERTIES OF RADIUM

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In this paper, I shall not attempt to give an exhaustive treatise on the physical properties of radium, but merely wish to present some of the fundamental facts concerning its activity. Every physician is interested in radium inasmuch as radio-therapy plays such an important part in the treatment of malignancy. There is no field in medicine regardless of how limited a physician's practice might be, or how highly specialized he may be in one particular branch of medicine, where malignancy does not enter. If a physician advises radium as a therapeutic measure he should know some of the basic principles governing its activity.

Radium is used in medical treatment in two distinct forms: first, as a salt such as the bromide, chloride, sulphate, and carbonate; second, in the form of an emanation. The former is a solid, the latter a gas. Both forms have identical action on malignant and normal tissues. Only relatively little has been written on the technique and dosage of radium treatment.

To understand how radium acts, it is necessary to consider some of its underlying fundamental physical and chemical properties. A study of its activity has thrown considerable light on the ultimate nature of matter. The working unit of radium like the working unit of any element is the atom. This is a complicated structure in which there is an equal amount of positive and negative electricity. The negative electricity is distributed equally among identical corpuscles or electrons. The size of a single electron in comparison to the atomic unit has been figuratively shown by some authors by comparing the size of a fly to that of a huge skyscraper. Usually the electrons are attached to the atom; the number and the arrangement of the electrons, the strength of the positive nuclear charge determines the chemical and physical properties of the atom. The forces tending to keep the outer systems of electrons in place in an atom of radium are relatively weak while on the other hand the electrons of the nucleus are held together by very great forces. Radium is a substance in which the atomic structure is continually exploding spontaneously resulting in a complete rearrangement of the inner and outer systems of electrons. This rearrangement of the atomic structure is usually accompanied by the ejections of some charged particles traveling at

a very high speed and sometimes by radiations of the x-ray type. This expelled portion is called the radium emanation or niton. Any substance which undergoes spontaneous rearrangement of the atomic structure is said to be "radio-active" of which Uranium, Actinium and Thorium are the three widely known series. Radium is an element of the Uranium series and is itself only weakly radio-active. The decay of radium follows the expotential law. That is, if we have one gram of radium today there will be half a gram in about two thousand years and a quarter of a gram in about four thousand years, and an eighth of a gram in about eight thousand years, and so on for about twenty thousand years. The remaining product at that time resembles lead in many of its characteristics. The emanation in turn explodes, giving off Alpha particles and radiations, leaving a product which give rise to Beta and Gamma radiations on further decomposition.

Now what happens to a quantity of radium in an air tight glass or metal container? The radium salt is continually disintergrating, but the emanation which is formed cannot escape. The emanation decays as stated above, giving room for the new forming emanation. Soon then only so much emanation will be formed as will decay, setting up an equilibrium between the amount forming and the amount decaying. Thirty days after a tube of radium is made air tight its radio-activity becomes and remains constant.

COLLECTION OF RADIUM EMANATION

Radium emanation is usually collected from the soluable radium bromide. Radium chloride is sometimes used. Two hundred milligrams or more of radium is needed to collect the emanation in sufficient quantity for treatment. The radium salt is dissolved in water to which a small amount of hydrochloric acid has been added. The flask in which the radium is kept is placed in a heavy lead lined safe to protect the operator who collects the emanation as well as to protect it from theft. The containing flask is then connected to a purifying apparatus by means of glass tubing. When the emanation first comes from the radium solution it is mixed with water vapor, hydrogen and oxygen coming from the water and chlorine coming from the hydrochloric acid. To concentrate the emanation these impurities must be extracted, for in reality only a small amount of radium emanation is present. Two methods are employed to do this; namely, by means of liquid air or by the method devised by Professor William Duane. The former method is used at Johns Hopkins University. Duane's method is the more widely used and is employed in the Memorial

Hospital of New York City and the Huntington Hospital of Cambridge. Briefly it amounts to this: the emanation with the impurities is forced through a purifying apparatus consisting essentially of glass bulbs and glass tubing from which the air has been extracted with a vacuum pump. The negative pressure within the apparatus and the passage of emanation with its impurities are controlled by columns of mercury. The hydrogen and oxygen are condensed on an electrically heated oxidized copper wire coil, forming water. The water is extracted with phosphorus pentoxide. The heated copper coil also removes any excess of hydrogen which might be present. The gas is then passed through potassium hydroxide and the carbondioxide which is formed during the process of purification is extracted, leaving the emanation relatively free from impurities. The emanation is then passed into a long capillary tube of about one-half millimeter in diameter. The capillary tube is then sealed off with a gas flame into many short sections, the length depending upon the case to be treated. The sections are usually from twelve to twenty millimeters in length.

The emanation tubes are collected and handled with great precaution. In case one of the tubes is broken accidentally, the operator leaves the room and does not return to seal off more emanation tubes until the room has been thoroughly ventilated. All radio-active emanation tubes should be handled with forceps. The emanation tubes are then placed in containers and are ready for use. In select cases emanation tubes are inserted into the malignant tissue and allowed to remain there as foreign bodies.

The emanation decays very readily. In about four days it is reduced to half the original strength; three-fourths in seven to eight days and seven-eights in about fifteen days. Practically all of the activity of radium emanation is lost in thirty days. The decay of radium emanation, like the decay of radium salts follows the expotential law.

Dr. Moir S. Martin, Mount Airy: We have with us today an invited guest, a very distinguished gentleman from Richmond, who has prepared a special paper for the Section on Chemistry, Materia Medica and Therapeutics. He comes to us from Virginia, and we feel that we should at this time extend to him the privileges of the floor.

It gives me great pleasure to present to you Dr. S. W. Budd, of Richmond, Virginia, who will read a paper on "The Treatment of Sarcoma with Radium."

THE TREATMENT OF SARCOMA WITH RADIUM

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Soon after the introduction of radium into medicine, it became evident that radium exerted a powerful action on malignant growths. Some of the most miraculous results known to medicine can be attributed to this element. Large sarcomata have have been observed to disappear in a short time without reaction or discomfort to the patient. Cases, that in the past would have been given up as hopeless, have frequently responded to radium therapy in such a manner as to cause surprise and astonishment not only to the patient but also to the physician who instituted the treatment.

It is not my purpose to laud too highly the powers of radium, altho I must confess that the preceeding paragraph is tinged with optimism. The results as pictured above are not so common, a certain per centage of cases suffering with sarcoma are not benefited by radium therapy and some are positively harmed by the injudicious use of it. It is not unusual to see a deep seated sarcoma stimulated to active growth and wide spread metastasis if the radium is given in insufficient quantity and the screening and distance from the radium to the tumor be too great. Radium is not a specific for sarcoma as some would have us think. It works like magic at times but its usefulness even in this disease is limited.

In dealing with sarcoma, we are dealing with a wily and a treacherous foe, one that never knows when it is beaten, and one that may resist all forms of treatment no matter how well or how skillfully applied. An opinion, then, as to the result to be obtained from our treatment before we try our wares is of doubtful value. It has been my custom to make three or four applications of radium before giving the patient any information as to the prognosis in the case. I find that it is well to picture the gloomy side because of the danger of metastatic nodules appearing elsewhere in the body. I have in mind three large sarcomata that I treated when I first took up radium therapy. In my optimism I pronounced them cured when the growths disappeared locally. These cases have subsequently succumbed to metastasis to the brain, liver and lung.

The character of the growths tells us, in a measure, what to expect from radium therapy but there are many pitfalls in basing an opinion on the microscope alone. By checking up the nature of the growth wherever possible with a microscopic examination, we have been able to group sarcomata in those that do well with radium and those that

are not so favorably influenced by it. As mentioned above, even though the nature of the growth is known to us, the prognosis should always be delayed until radium therapy has been given a fair trial.

In a general way we have found that a sarcoma composed of cells that exhibit vegetative characteristics is usually very malignant clinically but it responds favorably to radium therapy; while those that are made up of cells that show a tendency to differentiate are not so malignant clinically but they react sluggishly to radio-activity. In practically every sarcoma there is an attempt on the part of the cells to differentiate into some higher structures, but the finished product is not quite that of normal tissue. There may be exceptions to the statement that the key to malignancy in sarcomata lies in the amount of its differentiation, but these exceptions are few.

One of the most malignant sarcoma is one arising from cells similar to those seen in the primitive streak, in other words, one arising from cells of low grade differentiation. This variety of sarcoma is commonly known as round cell type and while it is difficult of cure from a surgical standpoint, it responds to radium therapy, with the possible exception of lympho sarcoma, more readily than any of the sarcomata. Spindle cell sarcoma is more highly differentiated than the round cell type and theoritically it should be less malignant. As a rule it does not grow quite as rapidly but this fact is largely influenced by the idiosyncrasy of the patient. The spindle cell sarcoma is not as favorably influenced by radium as the round cell variety. The fibro-spindle cell, the osteo sarcoma, the chondro sarcoma are tumors of a higher differentiation than any of the sarcomata and they are perhaps the least malignant of all, they grow slowly, they are fair operative risks but they are quite sluggish to the action of radium.

One can see at a glance that the diagnosis of sarcoma is not sufficient if the treatment is to be conducted along scientific lines, but I question the right of the radiologist to get a bit of tissue from all tumors to establish the diagnosis of the variety of sarcoma with which he is dealing. Wherever a bit of tissue can be gotten without injury to the patient, we always make a microscopic examination of it but we do not expose or cut into a tumor for this purpose alone. It has been said by some that the cutting into a tumor is not attended by danger; this may be so in animal experimentation but my experience with malignant growths in the human species has been different. Practically all of the sarcomata that I have treated have been operated on one or more times either for diagnosis or removal of the growth and most of the patients date the period of most rapid growth of the tumor to the time just following the operation.

The size of a growth should not deter us from giving a patient radium. In fact I would much prefer to treat an enormous tumor with no apparent metastasis than a smaller one with several nodules in the region of the original growth. Sarcomata that grow rapidly and become large are not prone to metastasize as the smaller variety. I never regard a localized tumor as hopeless no matter how large it may be. I believe that the histories incorporated in this paper justify such an opinion.

The treatment of sarcomata is largely influenced (1) by the location of the growth, (2) by the amount of secondary infection and (3) by the toxemia the patient exhibits.

Sarcomata of the extremities, head, neck and body that have not suppurated or from which the patient is not showing any manifest poisoning may be treated at first with the gamma ray alone and if this method fails it is well to bury the radium deep into the substance of the growth so that the tumor can get a taste of the Beta, the secondary and the gamma rays. There is always some risk in burying needles as an infection may be started which, coupled with the toxemia arising from tissue destruction that usually follows a large radium application, may so weaken the resistance of the patient as to cause widespread and rapid growth of the tumor or the death of the patient. On one occasion we have had this happen to us. There was a wide dissemination of the growth and the patient died with metastasis to the brain. Sarcomata of the head, neck, body and extremities, if there be no clinical evidence of toxemia from them should be treated vigorously from the outset. We begin our treatment with from 2,500 to 5,000 mg. hours of gamma ray in a single treatment or in a fractional treatment extending over several days. The radium is placed from one-half to one inch from the skin surface. In the small growths where few changes of the radium can be made, 2,500 mg. hours of the gamma ray is employed, but in the large tumors having ample skin surface for many changes, 5,000 mg. hours are used. If the tumor does not respond to the gamma ray we have the patient return in about a month for the second treatment. This time the radium is buried deep into the substance of the growth and 2,500 to 5,000 mg. hours of the unfiltered ray are given. If there is no improvement locally we feel that we have given the patient as much treatment as is justified. If there is improvement we continue the treatment, grading our dose by the size of the tumor.

In sarcomata of the nasal and oral cavities we apply the radium directly into the growth with needles or against the growth if needling is impossible. If the growth is needled and there be a plenty

of sarcomatous tissue to protect the healthy structures from the action of the radium we allow the needles to remain in the tumor until the tumor gets from 500 to 1,000 mg. hours of unscreened radium. If needling is inapplicable we screen the radium with brass and rubber and protect the healthy structures with lead plate and rubber and we give from 250 to 500 mg. hours. We repeat the treatment at intervals of a month and, as in sarcoma elsewhere, we give at least three treatments before attempting to prognose the outcome. Some of our most brilliant results have been in sarcomata in this region.

In sarcomata where a secondary infection exists or where the patient is showing signs of toxemia, we should proceed slowly with our radium therapy. It is never well to apply the radium too near the infected area or to give the patient too long an initial dose. An extension of the infection or a too rapid liberation of toxines may be more than the patient can stand. In the nasal and buccal cavities, if the infection is heavy we use an initial dose of 250 to 500 mg. hours. It would be hard of course to find a growth in this region that is not infected, but if the patient is not too toxic we proceed as if no infection existed. In sarcomata of the head, neck, body and extremities where the patient is toxic the treatment with small doses of 1,000 to 2,000 mg. hours of gamma ray with the radium placed about one-half to one inch from the skin and we are very careful to keep the radium from the infected area if one exists. We apply the radium at intervals of from ten days to two weeks and we bury needles or increase the dosage as the condition requires.

During the past two years we have completed the treatment of twenty-four cases of inoperable sarcoma with the following results:

Twelve or fifty per cent have died. In six of these there were multiple tumors when the patients presented themselves for treatment and they were not helped in any way by radium. In one case a single growth arising from the periosteum of the shoulder was not benefited by radium and the patient died with an invasion to the lung. In five cases the growth disappeared locally and the patient remained well for several months and died later with metastasis to the lung (2) liver (2) and brain (1).

In twelve cases the growth disappeared locally. In seven of these there has been no sign of a recurrence or a metastasis, five of these as mentioned above have died from a wide spread metastasis.

Microscopic examination of the sarcomata was made in ten of the twenty-four cases. Of these there were four lymphosarcoma, three of which cleared up under treatment and one died after the first treatment with extensive metastasis. There were two round cell

CASE NO. 1
a. Spindle cell sarcoma of antrum.
Treated with radium.

CASE NO. 1
b. End result of radium treatment.

sarcoma, one of which died with metastasis to the brain, the other case is apparently cured. There were two melano sarcomata, one was not affected by the radium while the other cleared and remained well for six months and died with a metastasis to the liver. There were two spindle cell sarcoma, one uninfluenced by the treatment, while the other case cleared and is apparently well. In fourteen cases no microscopic examination was made and among these six have cleared and four have subsequently died.

Two of the sarcomata were located in the tonsil and both tumors disappeared under treatment. There were two sarcomata on the hard and soft palate neither of which were influenced by treatment. There were two sarcomata of the Antrum of Highmore, both of which cleared up under treatment. There was one retroperitoneal sarcoma that improved markedly while in the hospital but we have lost track of her. There were four sarcomata of the shoulder, one cleared, one died with metastasis to the lung and we have lost track of two. There were five sarcomata of the thigh and groin, two cleared, two were unimproved and we have lost track of one. There were two sarcomata of the shin, one unimproved and we have lost track of the other. There was one sarcomata of the forehead that disappeared under treatment. There were three tumors of the body, two cleared but subsequently died with metastasis to the liver, we have lost track of the third. There were three tumors of the neck, two cleared, one died with metastasis to the brain.

REPORT OF CASES

Case 1.—Age 60. Date: October 21st, 1919.

Diagnosis: Sarcomata of nose and antrum of Highmore.

Microscopic diagnosis: Spindle cell sarcomata.

Complaint: Stoppage of nostril on left side, swelling of face.

F. H. and P. H.: Unimportant.

P. L.: Began two years ago with a fullness and stoppage of left nostril. She was told that she had polyps and had them removed several times. About one year ago the left side of the face commenced to swell and the swelling has progressed until there is a tumor about the size of a croquet ball on left cheek.

P. E.: Patient on admission to hospital had a temperature of 104 and was semi-conscious. She had a systolic pressure of 180, and a heavy trace of albumen and casts. The Wassermann test was negative. The tumor was about the size of a croquet ball and it came from the deep structures of the face. The nose was much swollen on left side and the nasal cavity was entirely blocked by the bulging of the growth into it. The frontal sinus and ethmoid cells were infected and there was considerable discharge from nostril on right side. The left eye was practically closed and there was much pus under the lid.

X-ray showed the anterior bony structures of the face had been eroded by the growth.

The patient received six courses of fractional treatment of 2,500 mg. hours. Radium has been applied into the antrum, nasal cavity, and on the exterior surface. The tumor has entirely disappeared.

CASE 2.—Age 40. Date: July 8th, 1919.

Diagnosis: Sarcoma neck, axillæ and lungs.

Microscopic diagnosis: Lymphosarcoma.

Complaint: Swelling neck.

F. H. and P. H.: Unimportant.

P. I.: Patient first noticed a fullness of the right side of neck about six months ago. This fullness has increased rapidly. About one month ago he noticed a lump in the right axilla, this at first was small but it is now about the size of a hen's egg. Patient has had night sweats and fever and has lost about twenty pounds in weight.

P. E.: Patient is poorly nourished man with a temperature of 102 and he gives the impression of being quite sick. Heart, lungs, abdomen and extremities are negative. His urine, Wassermann and blood count are negative.

His neck is about nineteen inches in diameter and all of the enlargement is on the right side. There are several tumors about the size of a robin's egg in the region of the mastoid process. There is a mass extending from the lobe of the ear to the clavicle. It is somewhat irregular in outline and gives the appearance of several glands running together. The mass is hard and fixed to the surrounding structures of the neck. The axillary tumor is about the size of a hen's egg and is freely movable.

The patient was given four fractional treatments of 3,000 mg. hours. The gamma ray was employed. The tumor of neck and right axilla disappeared.

Six months later the patient developed a tumor in the left axilla which grew to the size of a lemon before he came back for treatment. This tumor disappeared with two treatments of 1,000 mg. hours of gamma ray.

About two months ago I was notified that my patient was being treated in the T. B. dispensary. He was x-rayed and a large sarcoma of the right lung and mediastinal gland was revealed. He also had some small tumors in both axillæ. The patient is now under treatment. His axillary glands have disappeared and his right lung has practically cleared.

CASE 3.—Age 35. Date: March 6th, 1920.

Diagnosis: Sarcoma of neck with metastasis to brain.

Microscopic diagnosis: Round cell sarcoma.

Complaint: Tumor of neck. Blindness in right eye.

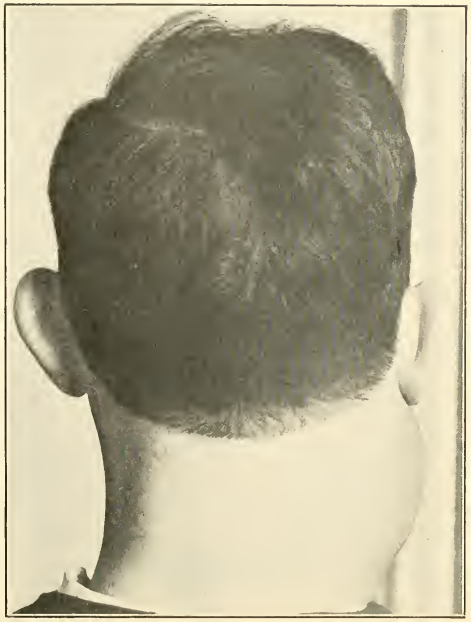
F. H. and P. H.: Unimportant.

P. I.: Tumor appeared on neck about sixteen months ago. It grew rapidly from the start and four months ago it was removed at operation and a diagnosis of round cell sarcoma was made. Soon after the operation the tumor commenced to grow and it has increased in size until it has reached its present dimensions. Two weeks ago patient thought he had a slight stroke of paralysis and since that time he has had severe headaches and has been blind in right eye.

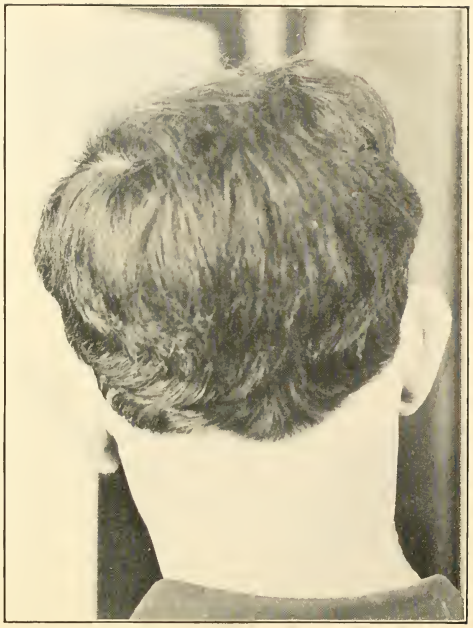
P. E.: Patient is poorly nourished man of small statue. There is no paralysis as suggested in history. He is blind in right eye. Wassermann negative, urine

CASE NO. 2
a. Lymphosarcoma of neck.
Treated with radium.

CASE NO. 2
b. End result of radium treatment.



CASE NO. 3
a. Round cell sarcoma of neck.
Treated with radium.



CASE NO. 3
b. Patient died with metastases to the brain.

CASE NO. 4
a. Lymphosarcoma of thigh. (Front view.)
Treated with radium.

CASE NO. 4
b. Lymphosarcoma of thigh. (Side view.)
Treated with radium.

CASE NO. 4
c. Condition of patient April 12, 1921.
Patient still under treatment.

CASE NO. 4
d. Condition of patient April 12, 1921.
Patient still under treatment.

and blood count are negative. Heart, lungs, abdomen and extremities are negative.

On the right side of neck there is a large mass extending from the lobe of the ear to a point one inch above the clavicle. The mass is smooth in surface and shows the scar of operation. The tumor is bound to skin and underlying structures and stony hard in consistency. The diameter of neck over most prominent part is 18 inches.

The patient was given 2,000 mg. hours of gamma ray with no improvement. Three weeks later he came in with a temperature of 101 degrees. We gave him 5,000 mg. hours of radium element buried into the growth. He had a terrific systemic reaction and six days later the neck tumor had disappeared. He died about a month later with a brain metastasis.

Case 4.—Age 40. Date: October 12, 1920.

Diagnosis: Sarcoma thigh.

Microscopic diagnosis: Myxo spindle cell sarcoma.

Complaint: Tumor of thigh.

P. H. and F. H.: Unimportant.

P. I.: A tumor appeared in right groin about twenty years ago. It grew to the size of an orange and remained that size until two years ago when it commenced to grow very rapidly. It was removed eighteen months ago. The wound healed and the patient remained well for several months. The tumor reappeared and has grown steadily.

P. E.: The physical examination is negative except for the large tumor of right thigh. The mass measures about forty inches in its greatest diameter. It extends upward over the crest of the ilium and downward to the middle of the thigh. The surface of the tumor is irregular in outline and there are several cyst like growths extending above the surface of the tumor in its upper part. In the region where a drainage tube was employed there is a sarcomatous granulation extending an inch above the surface. A portion of the tumor was excised for examination and the diagnosis of a myxo sarcoma was made of it.

Patient has received about a thousand mg. hours of gamma ray every week since October, 1920. His right thigh now measures about twenty-four inches in its greatest diameter.

GENERAL SESSIONS

Tuesday, April 26, 8:00 P. M.

The meeting was called to order by the President, Dr. T. E. Anderson, who said:

Ladies and Gentlemen: To give dignity to our meeting and as a fitting reception to our out-of-State distinguished guests, we had asked our gifted Governor to preside here tonight, but as he has been delayed in reaching here and for the further fact that Dr. Frederick R. Green of Chicago, Secretary of the Council on Health and Public Instruction of the American Medical Association, who has been here two days, must leave in a very short while to catch his train, we can wait no longer. I regret this very much as I am sure that our Governor had in preparation a most elaborate and suitable introduction to Dr. Green, setting forth the high place he occupies in the medical world of our country and portraying to you his worth and accomplishments. Dr. Green will now address you on "The Social Responsibilities of Modern Medicine."

THE SOCIAL RESPONSIBILITIES OF MODERN MEDICINE

Frederick R. Green, A. M., M. D.

Secretary, Council on Health and Public Instruction,

American Medical Association

Permit me to first express my thanks and appreciation of the invitation extended to me through the officers of your association to attend this meeting. The pleasure of meeting a session of the Medical Association of the State of North Carolina is one which I have long anticipated. As was so well and eloquently described by your President, this morning, the development of our State association during the last twenty years has been a source of gratification to all those interested in seeing the medical profession of our nation become a compact and efficient body. I had the pleasure last week of attending the meeting of the Medical Association of your sister State of Alabama. I had not been in Montgomery since 1916. On the last day of my visit, I went as I always do to the Capitol Building to view the relics of the earlier years of our nation's history and to stand

on that memorable spot where Jefferson Davis took the oath as President of the Confederate States of America. But a change had taken place since my last visit. In front of the brass star let into the pavement of the portico of the Capitol which marks that historic event, I found a new star, a gold star placed there to commemorate the loyal and intrepid sons of Alabama who gave their last full measure of devotion in the defense of democracy and civilization in the Great World War. Is not that symbolic of a greater unity, far beyond even the imaginings of the framers of our constitution, a unity which now binds over forty-eight States into a great and powerful nation?

The selection of a subject for your consideration involved some difficulty. The high character of the personnel of your membership is widely recognized. There is no purely scientific question connected with medicine or surgery, which I would be able to discuss in a manner deserving of your consideration. The rapid development and present high efficiency of your public health organization is equally well known. Under your State Health Officer, whose services as a member of the Council on Health and Public Instruction have been invaluable to our national body, your State has attained an enviable reputation in public health. In this field as well, I have nothing to offer that would be worthy of this occasion.

The discussion of any question connected with either scientific medicine or public health was therefore barred.

But there is another field of effort, distinct, yet closely allied to these two great subjects, which has during the last generation been slowly, almost imperceptably developing before our eyes. It is that of social medicine, the influence of and the relation of modern scientific medicine to social conditions. Unthought of and unrecognized until recently, it has now assumed an importance both to physicians and the public which can no longer be ignored. It is to this field that I invite your attention.

Your President this morning in his brilliant address, did me the great honor of quoting a few sentences from a previous paper of mine along similar lines. Not suspecting that any modest efforts of mine had attracted any considerable attention, I have used some of this material on some points which I conceive to be fundamental in discusing any of our problems, in laying the foundation for the argument I am about to present. For this unavoidable repetition I ask your patience and forbearance.

The problems of social medicine are peculiar to the present generation. Their development is due to the change that has taken place in the relations between physicians and the public. Up to the middle

of the last century, medical practice was individual. No one consulted a doctor until afflicted with some specific disorder. The only interest that the physician had in the patient was a personal one. Little was known regarding the cause of disease, the method of its transmission, or the means for its prevention. If a physician was called to see a patient suffering from typhoid fever, he treated the patient until he recovered or died. There was no way of knowing how the patient had acquired the disease or how any other individual could acquire the disease from him. The physician had no responsibility to the community, since there was no act of his, the performance or omission of which could in any way affect society, either favorably or unfavorably. All that he could do was to care for his individual patient and, so far as possible, in the case of those diseases which experience had shown to be infectious, to prevent others from contracting it. As Sir George Newman, the Chief Medical Officer of the British Ministry of Health, says, up to 1850 the medical profession had no public or social functions or responsibilities except the enforcement of such crude methods of quarantine as had been developed through experience. Public Health Work up to the last half century was largely accidental and empirical.

As a result, the instincts, training, methods and traditions of the medical profession for centuries past were entirely individualistic and were centered on the individual treatment of individual patients. This was the full duty of the physician. But today an entirely different situation exists. Modern medicine has a social value as great, if not greater, than its individual importance. The development of the natural sciences during the nineteenth century has increased our knowledge of diseases and their prevention more rapidly during the last fifty years, than in the preceeding 1,800 years of the Christian Era. The development of preventive medicine since 1870 is too well known to need recounting. Today, if a physician is called to see a patient and makes a diagnosis of typhoid fever, while he will naturally do everything possible to promote the comfort and recovery of his patient, yet the determination of the source of the disease and the prevention of the development of other cases from the initial case as a focus, i. e., the social aspects of the problem, are of as great if not greater importance than the treatment of the individual patient. This becomes increasingly true as the disease increases in rarity and severity. Suppose a single case of bubonic plague were discovered tomorrow in New York City. The correctness of the diagnosis of this single case would affect directly or indirectly every man, woman and child of the millions in New York and of the many millions in the

eastern half of the nation. A single case of Asiatic cholera unrecognized in one of our seaports might easily change the currents of trade and affect millions of dollars of capital and innumerable human beings. Modern scientific medicine is today one of the most vitally important and indispensable factors in modern life and we have as yet only seen the beginning. We cannot now appreciate nor realize the possible benefits which our present and future knowledge of diseases and their control will have on the well being and happiness of the human race.

But while for half a century our knowledge, as Tennyson says has "grown from more to more," our professional habits have remained the same. While the social value of medical services is now equal to, if not greater than the value of medical services to the individual, the medical profession is, in its methods, as individualistic today as it was fifty years ago and as it has been for the last five hundred years. In spite of the rapid development of public health administration as a function of municipal, State and national governments and the constantly increasing demand for properly trained and qualified men to serve in official positions, medical students are still trained almost exclusively for the treatment of individual patients. Practically nothing is taught regarding social medicine. If, after graduation, a physician has an opportunity to take up public health work, he is forced to get his training at the expense of the community after he has been appointed to office. It is only in the last few years that any differentiation has been undertaken between the training necessary for individual practice and that required of a man who desired to devote himself to the service of the community or the State.

What is true of our medical colleges is also true of our medical societies. Papers on Public Health questions or on social and economic problems are read to a handful of listeners, while the majority of the members flock to some surgical amphitheater to see a surgeon operate on an individual gall bladder, or to listen to papers on the diagnosis and treatment of individual patients. Questions of public policy and legislation, involving the welfare of an entire State, arouse little general interest and are left to a small group of public spirited physicians. Our professional standards are based on the same methods of valuation. An individual's standing or success in the profession is estimated largely by the number of patients he has seen, the number of clinical cases he has reported or the number of operations he has performed. So long as the profession was limited entirely to individual services, these were the natural standards. Today these standards are obsolete and in need of revision.

If it be argued that in the development of social medicine in so far as it has gone, the physician has contributed his full share of services, often at considerable sacrifice to himself, it can only be replied that this is perfectly true and that as a health officer or member of a local or State board of health at a ridiculously small and inadequate salary, or as an attending physician or surgeon to a public institution or free clinic, the great majority of physicians give valuable service worth large sums of money. But it is at the same time equally true that these contributions, magnificently generous as they are, have been contributed by the physician as an individual rather than as a professional participation in a definite social program.

The explanation of this apparently paradoxical situation lies in the fact that today, as for centuries past, the physician makes his living by charging individual patients for individual services and so long as individual services are the principal source of income of the majority of physicians, there naturally will his chief interest lie. While the development of scientific knowledge in the last fifty years has produced an entirely different conception of the relation of disease to society, of the duty of society to the individual and of the individual to society in the control and prevention of disease, the economic relation of physicians, both as individuals and as a body, to their patients is still practically the same individualistic relation that it has been for hundreds of years past. The medical student of today still gives the greater part, if not all of his time to the study of disease as an individual phenomenon, while the practicing physician gives the bulk of his time and all of his interest to the treatment of individual patients. It is absolutely essential that physicians recognize the fact that the treatment of diseases of the community and of social conditions which produce disease and impair efficiency are just as much functions of the medical profession as are diseases of the individual; and that they endeavor to qualify for the same services in the social field that they have so magnificiently performed and are now performing in the individual field.

If we fail to do so then we must expect to see this field taken over by non-medical workers. This has actually occurred in the last few years in social welfare organizations, made up almost entirely of men and women without medical knowledge and in many cases without any scientific training. While an effort has been made to put their theories and practice on a sound basis, the subject is, as yet too new, the data too incomplete and the workers as a rule too little trained to entitle social welfare to recognition as a science. Yet there has been no lack of suggestions from this class of workers as to the

remedies which they consider appropriate for existing social conditions.

To attempt to discuss all of the schemes which have been proposed for the improvement of health through social methods would be impossible. The two which have so far aroused the most interest and discussion are Compulsory Health Insurance and Rural Health Centers. As remedies for our supposed social ills they require careful consideration.

Compulsory, State supervised, industrial insurance, social or health insurance as it is variously called, originated in Germany in 1883. Responsibility for it is generally attributed to Bismark, at that time Chancellor of the German Empire. Various forms of State Insurance, partial or complete, compulsory or voluntary, have in the last thirty-five years been adopted in many European countries. To discuss the details of this movement in each country is impossible within the limits of this paper. In this country, the subject was first taken up by the American Association for Labor Legislation, which had previously been active in securing the passage of workmen's compensation laws in forty-two States. In December, 1912, it organized its social insurance committee, which in 1914 prepared a tentative draft of a health insurance act. This was introduced in Massachusetts, New York and New Jersey. In 1917, the bill was introduced in twelve other State legislatures. None of these fifteen States adopted the bill. Eight of them, California, Massachusetts, New Jersey, Connecticutt, Illinois, Ohio, Pennsylvania and Wisconsin appointed commissions to investigate the subject. In Massachusetts and California, two successive commissions were appointed, making in all ten official bodies, which have made surveys, collected evidence, held hearings and issued reports on this question. In New York, a reconstruction commission, appointed by the Governor, also considered it. In Massachusetts, the first commission reported in favor of compulsory health insurance and the second commission reported adversely. In California, both commissions reported in favor of the plan, but on a referendum to amend the State constitution to permit the establishment of compulsory State health insurance it was defeated by a vote of 358, 324 to 138, 858. In New Jersey and Ohio, the commission reported favorably. In Connecticutt, Wisconsin and Illinois, the majority of the commission reported against it. In Pennsylvania, the commission recommended further study and investigation. In New York, the Governor's Commission reported favorably but the bill failed to pass. Up to the present time it has been introduced in fifteen States and passed in none. Contrary to general expectation, it was only intro-

duced in a single State legislature during the last winter, that of New York, where it has so far remained in committee.

Let us now ask what is this proposed plan, stated in its simplest terms. The standard bill drafted by the American Association for Labor Legislation provides that all employees earning less than $100.00 per month shall be entitled to medical, surgical, hospital and nursing care, dental treatment, maternity benefits, cash benefits, and funeral allowances. These services are to be paid for out of a fund of which two-fifths are to be contributed by the employee in the form of compulsory payments of a certain percentage of his wages, variously estimated at from 3 to 7½ per cent, two-fifths are contributed by the employer in the form of compulsory payments of about the same percentage of his pay roll and the remaining fifth is contributed by the State. This fund is to be administered by a local board for each group of 5,000 employees to be composed of an equal number of representatives of employers and employees, all the local boards to be under a State commission, which determines the conditions of medical treatment, terms of compensation to physician, etc.

Details vary in different bills, but do not affect the principles involved. The maximum annual income as fixed by the British law was approximately $800.00 a year. That is, only employed persons whose gross annual income was $800.00 or less, came under the compulsory provisions of the law. This has since been raised to $1,200.00. In the Model Bill drafted by the American Association for Labor Legislation, the maximum amount is $100.00 a month. In the present New York Bill, the limit is $600.00 per year. The proportionate amounts to be contributed by the three parties also vary in different bills. The amount contributed by each employee is fixed by a sliding scale in accordance with which the amount contributed by the employee decreased and that contributed by the employer increased as the weekly earnings decreased in amount. Employees receiving less than $5.00 a week pay nothing, the employer pays 80 per cent and the State 20 per cent. Medical and surgical attendance is provided either by the appointment of certain physicians or by the creation of a panel or list of physicians in each district willing to care for those insured. Proposals for the compensation of physicians differ. The payment to each physician of a fixed salary, division among all the physicians on the panel of the amount appropriated for medical and surgical services for the district and a capitation system by which each physician is paid in accordance with the number of persons treated or the amount of work done during the year, are among the methods proposed.

Such is the plan in its briefest terms. Endless discussion has taken place regarding details with the result that the fundamental issues have been lost sight of. What are the arguments in favor of it?

The brief on the model bill prepared by the American Association for Labor Legislation makes the following claims:

There is a disproportionately large amount of sickness among the employed. This causes immediate loss of time and wages and results eventually in incapacity and poverty. There are as nearly as can be estimated, 3,000,000 persons in the United States sick at any one time. Each of the 30,000,000 wage earners loses approximately nine days a year through illness. The resultant annual wage loss amounts to half a billion dollars. The wages paid American workingmen are inadequate to enable them to meet the expense of sickness and to bear the losses consequent on sickness and incapacity. It is, therefore, it is claimed, necessary to distribute this burden among three parties, viz., the employee, the employer and the State. The objects of the proposed plan are, primarily two, viz., to reduce to a minimum the amount of time lost by workmen through sickness and to divide between the State and the employer 60 per cent of the cost of the illness of employees, leaving 40 per cent for them to carry as their share.

It would be interesting if time permitted to discuss in detail the evidence produced by the advocates of social insurance in support of their proposition. It can only be pointed out here that the arguments in favor of the plan rests on estimates or opinions and not on facts. The evidence is not "overwhelming," neither does it clearly indicate the need for social insurance as claimed by its advocates. On the contrary, the evidence is fragmentary, incomplete and inconvincing and many of the conclusions drawn are not justified by the facts. There are no figures in existence, showing the death rate in the United States from different causes or in different social and industrial classes, the amount of sickness in the United States for any given period or class, the average income of workmen in the United States or the average amount of time lost by workmen through illness. Statements made by advocates of the plan are, in the main, based on studies of small groups, the conclusions drawn from three groups being applied at proportional rates to the entire population. Such methods are clearly fallacious. There are no reasonably complete or convincing data which would justify the sweeping generalizations made by the advocates of the scheme. The only way in which convincing evidence can be secured is by a survey made not to secure evidence to support a preconceived theory, but to obtain facts as to existing conditions as a basis for whatever constructive action may

be found necessary. Such a survey has not yet been made in any State.

Let us now examine the plan to determine what it is not. In the first place it is not insurance. The essential principle of insurance is the distribution of loss from any cause among a large number of persons subject to the same risk, so that the loss of one will be borne proportionately by all. For example, 100,000 men owning homes, either by mutual agreement or by taking out policies under an insurance company, prorate among the entire number any losses that may arise to any one of the number, so that the loss of each one is distributed among the entire group rather than borne by the individual. That is insurance. The proposed plan is not insurance, since it does not distribute the loss among those exposed to the same risk, but brings in two parties in no ways sharers of the risk, viz., the employer and the State. If the proposed plan provided for distribution of the entire cost of illness of employees among themselves, either mutually or through a supervising corporation or the State, then it would be insurance. As it is, it is simply a method of taxing all the citizens of the State, either directly or indirectly, in order to maintain the productive efficiency of a part of the population. All the cost will ultimately come on the consumer. Neither the employee or the employer as such will bear any part of the expense. What would happen if such a plan were adopted in any State? The workmen finding that a certain amount was deducted from his wages each week would immediately demand that his wages be increased enough to make good this deficit. This increased wage would be added to the operating expense of the plant. The employer would hardly be expected to pay his assessment out of his profits. He would add his share to the operating expense account. So that the cost of production and ultimately the cost of the product to the consumer would be increased by the addition of whatever amount the employee and the employer are compelled to pay and would be paid by the consumer as an indirect tax, as a part of the price of the commodity. The one-fifth contributed by the State could only be paid out of money secured by taxation. The proposed plan, therefore, is not insurance at all, but is simply a plan for providing medical, surgical and hospital care for employed persons in order to increase the industrial out-put and so benefit a portion of the population at the expense of the entire citizen body, through direct and indirect taxation.

In the second place, the proposed plan is not health insurance. The object is not the maintenance of health, but the maintenance of productive efficiency. It is neither a medical nor public health pro-

position. It is purely an economic measure, intended to maintain the efficiency of the employee and the productiveness of the industrial plant at the highest possible point. There is no evidence that the proposed plan would have any public health value. The best and most reliable information from England is that after ten years trial in that country it has had no effect on public health. The term health insurance, therefore, is a misnomer. Instead, it should be called taxation for the increase of industrial production.

In the third place, contrary to popular conception, the proposed plan is not intended for the relief of poverty and unemployment. In England, which has probably the most elaborate system of poor relief laws of any country, the operation of the poor laws has not been altered by the adoption of social insurance. The proposed plan only cares for those who are employed and who are drawing wages. Those unemployed at the time such a law would go into effect and those incapable of supporting themselves, are in no way provided for under such a plan and would be cared for through voluntary philanthropy or by State charitable institutions, as at present.

In the fourth place, it is unsuited to social economic and political conditions in this country. It is undemocratic in that it substitutes governmental care for personal responsibility and creates a definite class of employees. In European countries classes are fixed and stationary. A man is born into a certain class and remains in it through life. If he is born into a wage earning family, he becomes a wage earner and generally remains one. In this country we have no such class distinctions. The employee of today is the employer of tomorrow and the member of the leisure class the day after. He is not only able and willing, but eager to bear his own responsibilities, to assume the burden of his own mistakes and misfortunes and to reap the result of his own enterprise and energy. He does not need nor desire governmental supervision.

When carefully analyzed, the proposed plan is seen to rest on four propositions, all of which must be proven in order to establish a case. These are:

1. There is a disproportionate amount of sickness among employed persons, causing financial loss, incapacity and poverty greater in proportion than that sustained by the average person and requiring special methods of relief. Until this is proven there is no reason for special laws for employees.

2. The financial burden caused by sickness is heavier than the average employee is able to bear. Until this is proven there is no reason to assume that he cannot carry his own burden.

3. Present methods of promoting public health and controlling diseases are not adequate. Until this is proven there is no need of devising any new plan.

4. Compulsory State supervised sickness insurance is the best remedy for this condition. Until this is proven it is possible that some other remedy may be better.

The burden of proving these four propositions lies with the advocates of social insurance. No one of them has yet been proven. Neither is there at present any conclusive evidence or any mass of statistics or data by which any one of them can be proven. It is not known how much illness or incapacity exists, either among employed persons or among any other class of our population. It is not known what is the average wage. It is not known whether the burden of illness is or is not heavier than the average employee can bear without assistance. It is not known whether existing agencies are adequate or not. Statement as to the number of persons sick in the United States at any one time, among wage earners, or any other class, or among the population as a whole, or as to the amount of time or money lost through sickness are estimates, in many cases are mere guesses, based on generalizations from incomplete and inadequate data and not on facts.

Of the four essential propositions on which the proposed plan rests, the first three cannot be proven, owing to insufficient knowledge. But even if it could be shown that employees as a class are suffering from an undue amount of illness, that the financial cost is greater than they can bear without assistance and that the present method for remedying this situation are inadequate, it still remains to be proven that the plan proposed is the best remedy. The claim that health insurance is the best remedy for existing social ills is a pure assumption. At least five alternatives must first be considered. They are:

1. An increase in the wages paid to the employed, so that each one will be able to bear his own burdens.

2. The development of State, municipal and local health agencies to a point where preventable diseases will be reduced to a minimum and the burden on the individual limited by reducing the amount of sickness.

3. The development of voluntary thrift and saving habits among employees to a point where through increased thrift and foresight they may be able to provide for their own emergencies.

4. The development of voluntary industrial insurance on the part of employees and employers in industrial corporations and groups.

5. The development on the part of wage earners and employees

themselves of voluntary assessments and benefits through trades unions, benefit associations, etc., for their own protection.

All of these are possible alternatives to compulsory insurance involving the development of methods already in operation. Naturally, existing remedies must be considered and tried before a new and untried scheme is adopted. Just as the surgeon would consider every alternative before advising a radical operation, so the inadequacy of existing methods must be proven before taking up any new and experimental scheme.

The attitude of the organized medical profession on this question has been officially determined. The American Medical Association at the New Orleans Session in April, 1920, adopted by a practically unanimous vote a resolution declaring its opposition to any plan of compulsory contributory insurance against illness or any other plan of compulsory insurance, provided, controlled or regulated by any State or the Federal Government. A number of State associations have adopted similar resolutions. The organized medical profession is, therefore, unqualifiedly opposed to compulsory State health insurance.

This action of the House of Delegates was unanimously endorsed by the Council on Health and Public Instruction, a result to which the Secretary of your State Board of Health, as a member of Council, who had been from the beginning strongly opposed to Health Insurance, largely contributed.

The second plan for improving the conditions of medical service is generally known under the name of Health Centers and is an effort to concentrate in one institution in each county or rural community, all of the local forces for better health conditions. Two forms of such an organization have so far been proposed. The first is that proposed by the American Red Cross, following the close of the war. Before the war, the Red Cross was a limited semi-official organization for the temporary relief of communities in times of disaster. During the war, it developed into an enormous popular organization of 22,000,000 members. Its work during the war, both in this country and in Europe, is deserving of the highest praise. After the armistice, however, it was one of the few war time organizations which did not revert to its peace time status, on the contrary it has endeavored to retain its war time membership and public support. In order to do this it was necessary to formulate and present plans for peace time activities which would be commensurate in importance with the size of the membership and the amount of its income.

Two main projects were announced, rural health centers and public health nursing. The official announcement issued by the American Red Cross, September 25, 1919, defines a Health Center as a physical headquarters for the public health work of the community. It suggests as possible features, a tuberculosis clinic; a child welfare bureau; community headquarters with reading and rest rooms; headquarters for the district nurse, baby health contests; social hygiene clinical and educational work; industrial health clinics and instruction on the prevention of accidents and industrial illness; dental and general clinics, etc.

The Red Cross program is as yet too vague to be of value as a detailed working plan. Although the plans for Red Cross Health Centers were announced two years ago, they have not been adopted to any extent, neither have they made any appreciable impression on the existing situation.

The other proposed plan for health centers originated in New York, largely as a substitute for Health Insurance. The Sage-Machold Bill, introduced in the New York Legislature in March, 1920, divided the State into health districts and provided for a health center in each district. This bill did not pass. The Robinson-Moore Bill now before the New York Legislature, is practically the same bill as far as health centers are concerned, but omits the provisions regarding health districts. The object of the bill is to provide the residents of rural districts and all others who cannot otherwise secure such privileges with adequate medical treatment, hospital and dispensary facilities and nurse's care; to assist local physicians by providing laboratory and other service and to improve the public health by authorizing a county or city to create and maintain health centers. The Board of Supervisors in any county is authorized to establish one or more such health centers. City centers may be established by municipal authorities. The centers are to include a general hospital with special pavilions for tuberculosis and other communicable diseases, children and maternity cases and mental diseases. There are also to be clinics for out patients, clinical, pathological, bacteriological, chemical and x-ray laboratories auxillary to the laboratory of the State department of health; public health nursing service; headquarters for voluntary public health agencies; medical libraries, facilities for medical inspection and supervision of school children and periodical medical examination of such inhabitants of the district as may desire it. The Health Center is to be under a Board of Managers, consisting of the County Judge, two practicing physicians, one woman and three other members. All persons residing in the district may avail themselves of the

health center facilities. Those who are unable to pay are to be given examination, care and treatment free. Others are to pay such charges as may be fixed by the superintendent. Each paying patient shall be treated by the physician he selects. Funds are to be derived from charges for patients able to pay, local public funds, gifts, donations and bequests and from State aid. Grants from the State are to include the following: one-half the cost of construction not to exceed $750 a bed; seventy-five cents per day for each free patient; one-half the cost of installation of each out patient clinic not to exceed $5,000; fifty per cent of the cost of free treatment not to exceed an average of 20 cents per treatment; one-half the cost and maintenance for the laboratory, not to exceed $3,000 and $1,500 for the initial installation and equipment of each laboratory. Health Centers are to be inspected and standardized by the State Department of Health and State aid is to be given only to those centers which are approved by the State Commissioner of Health. This bill at the same time of writing is before the Finance Committee of the State Legislature.

Of the two remedies proposed, health insurance is economically, socially and scientifically unsound, while the health center idea is not as yet sufficiently developed to admit of definite criticism as a national remedy. It will, of course, readily be conceded that in several instances locally organized health centers have been successfully conducted. These isolated and sporadic successes, however, do not form a sufficient justification of the plan as a solution of national social problems.

While this disposes of the specific questions of Health Insurance and health centers a larger problem at once presents itself. Does the rendering of an adverse verdict on these two proposals constitute the whole duty of physicians? Let us apply the same situation to the more familiar field of private practice. Suppose any one of us were called as a consultant in the case of an individual patient. After careful examination of the patient, we find that both the diagnosis and the treatment are wrong. Is our full duty as a consultant performed when we have stated these conclusions to the patient or to his friends? Under such circumstances would we not immediately be asked to furnish the correct diagnosis in place of the erroneous one and to supply a proper method of treatment as a substitute for the one we have condemned? And would we not all admit if we refused to do so, there was no alternative remaining but to confess that the case was beyond our ability and knowledge and to withdraw and give place to a more capable consultant.

In the case under discussion the patient is the social body. That it is suffering from certain ills is probably not questioned by any one. The exact nature and extent of these ills, in other words, the diagnosis, is the question at issue. Until an exact diagnosis is made, any proposed method of treatment must necessarily be empirical rather than scientific. We have questioned the views of those who claim to be competent and qualified to diagnose and prescribe for our social ills. We have opposed the treatment which they have prescribed as unscientific and inadequate. Does not this situation constitute a direct and unavoidable challenge to the medical profession, either to furnish a correct remedy for such ills as may be demonstrated or to admit that the case lies outside of our province and to withdraw in favor of a better qualified authority?

I think we will all agree that both the making of a diagnosis and the prescribing of the treatment of the diseases of society are at present beyond the ability and knowledge of any one man, either physician or layman. We are at present without the exact knowledge of social conditions necessary for accurate diagnosis of social ills, nor will such a diagnosis be possible until we exert the same energy, ability, industry and perseverance in the study of social ills that the medical men of our own and previous generations have shown in investigating the disease of the individual. But the assumption of this task is an assertion of our belief that the study and treatment of social ills are just as much functions of the modern physicians as are the diagnosis and treatment of the ills of the individual. Are we as physicians willing to take this position and abide by its consequences?

It is important that physicians should understand clearly the significance of the present agitation for social reforms in the health field. To regard this movement as an isolated and single phenomenon would be a serious error. On the contrary it is due to a series of causes which spring from the same sources as the development of scientific medicine. The medical profession itself through its labors and progress is very largely responsible for the present situation. For fifty years we have been so busy extending our knowledge that we have not had time to adjust our methods to conform to changing conditions. While we possess scientific knowledge which enables us to render service of greater value than any other professional group can offer, we have continued to do business on the old basis of so many dollars for so many calls on the individual patient. Yet the medical service which can be rendered and which in the future must be rendered to the community by physicians are of far greater value than any service which we can render to the individual. Medical services

have grown in value until under present methods, modern, up-to-date medical attention is beyond the reach of the majority of persons unless they secure it through charity. Health Insurance is only one of the schemes proposed whereby adequate medical services can be put within the reach of the average workman. The fact that this particular plan is economically unsound and that it probably would be ineffective in operation does not relieve us of the immediate necessity of devising some method by which adequate medical services can be made available for every individual needing them.

The proponents of the proposed plan, instead of first studying the situation in this country and devising a plan suitable to existing conditions, endeavored to transplant entire from Germany by the way of England a plan unsuited to this country and out of harmony with our social institutions and economic conditions. But condemnation and defeat of health insurance brings us no nearer the solution of the real problems than we were before. There still remains the need, as imperative as ever, of remodeling the economic methods of practice now existing in the medical profession and of substituting for the method of individual services to individual patients some plan whereby each individual as a part of his social right will secure every protection for his health and well being that modern medical knowledge can give him. The efforts for the adoption of health insurance should be recognized as the beginning of an effort to readjust professional methods to social needs.

In the discussion of this method there are as always three distinct groups: First the conservatives who desire only that things shall remain as they are; second, the radicals who look forward with eager vision and often without accurate discrimination to what they hope will be better conditions and who favor any proposed change in the existing status; and third, the mass of the medical profession who have accepted conditions as they found them and have made the best of them, who are willing to adopt new methods if their value can be demonstrated, who are neither wedded to the past as are the conservatives, nor plunging rashly into the future as are the radicals. I take it that 75% at least of this audience belongs to the third class. To you, therefore, I wish to submit what is to my mind the most important and fundamental question in the whole discussion. Briefly stated, it is this: Is social medicine a function of physicians? Is the physician of the future going to restrict himself to the treatment of individual patients as he has in the past, or is he going to assume the responsibility for the treatment of society and of humanity in the mass as well as of the individual. If he is, then he must qualify

himself for this work. If he is not, then he cannot complain if others take up the work which he refuses to do.

I assume there is no difference of opinion as to the answer to this question. The medical profession owes it to society as well as to the individual to render the best service and to do the best work of which it is capable. It is inconceivable that the highest type of medical service, whether individual or social, shall be rendered by any other than scientifically trained men. But if physicians are going to assume this responsibility, especially if we are going to demand control of this field, as we have of the field of the treatment of individual ills, then we must qualify for social leadership just as thoroughly as we are now qualifying for individual services.

If we are going to assume leadership, then we must have a definite policy and this policy must be based on knowledge and not on prejudice and selfish interests. If the medical profession is to undertake responsibility for social service as a part of its professional functions, then social medicine and its problems must be studied and discussed in our medical organizations and medical publications as carefully as the problems of individual medicine. If social medicine is to be one of the functions of the medical profession of the future, then the medical student of the future must be given broad and adequate instruction regarding its problems. He must be taught social anatomy, pathology, diagnosis and treatment as thoroughly as he is now taught the diagnosis and treatment of individual diseases. We must begin in our medical schools to teach the medical student social medicine and to develop in the doctor of the future an instinct and a capacity for social leadership.

The issue is plainly before us. Shall we adhere to the methods and practices of the past until we are forced to abandon them, or shall we broaden our methods to keep pace with the ever widening bounds of scientific knowledge. The question must be answered by those who are practicing medicine today, for in your hands lies the future of scientific medicine.

Dr. Anderson: I shall ask Dr. Rankin to return the thanks of this body to Dr. Green. (Applause.) Dr. Rankin, will you please extend to Dr. Green the thanks of this Society?

Dr. W. S. Rankin, Raleigh: *Your Excellency, Ladies and Gentlemen*: The pleasant task that your President has assigned me is to give the thanks of this audience to Dr. Green for his statesmanlike address on "The Social Responsibilities of Modern Medicine." It

is a task, however, that I am completely incapable of performing. I can only say that our whole North Carolina Medical Society are deeply grateful to you, Dr. Green, for coming here and giving us this enlarged view of the future of medicine.

President Anderson, introducing Governor Morrison: Ladies and Gentlemen: We have made for your entertainment here tonight, requisitions upon neighboring and distant States and have selected the highest and best those sections afford, but to prove to you, and to our guests, that "Old North Carolina" is not exhausted, we have brought to you our exhaustless and versatile Governor, whom we are at all times glad to see and hear. I present to you Governor Cameron Morrison, who will now preside over this meeting. (Applause.)

Governor Cameron Morrison, presiding over the general session, Tuesday evening: *Mr. President and Gentlemen of the Medical Society of North Carolina*: I am indeed thankful for the very great honor which I have had done me this evening. It is the greatest honor which has come to me since I have been your Governor. I not only thank you for this honor, the opportunity of presiding over your deliberations, but I also most sincerely thank you for the very handsome and cordial manner in which you have received me. It is indeed an honor to any man, I care not what the official position may be which he occupies, to preside over a convention of the medical men of North Carolina. (Applause.)

In my judgment, we have the most splendid, superb, progressive spirit in North Carolina now that is to be found in this entire Union of States; and I do truly believe that your great profession has had more to do with inspiring this great spirit in this State than any other like number of men within its borders. North Carolina now, without party or factional division, is united upon a great progressive program. We have adopted a program in this State; and in its adoption, the men of all political parties played a worthy part.

In the last General Assembly of this State, I asked, as your Governor, for the adoption of a program which I believed I had discovered in the heart of the intelligent people of this commonwealth. The second plank, I might call it, in that program was health protection. There were other great progressive propositions in it, and it was adopted in this State by the almost unanimous vote of the representatives of both political parties in that General Assembly. I have been such a partisan for some years past that I had some fear that my political opponents might oppose the program, however meritorious, merely

because such a partisan as I was had been the spokesman of the State in asking for its adoption; but I was truly grateful to find that the few partisans there, were never even able to get one-third of the Republican members of the Legislature against me.

I cannot talk of that program tonight. It has been adopted; and if it can be worked out and administered wisely, I believe that we shall have in North Carolina, the strongest and happiest people to be found under the flag.

We have made great progress in throwing upon the people of this State the light of the world's knowledge of preventive medicine.

I want to congratulate you doctors, because you so truly and nobly work against your own interests. There is no body of people on earth who work so hard to destroy their own vocation as you do. If you would let the world alone, then you would have plenty of occupation; but you have led the world today away, as far as can be, from the need of doctors. You have led it intelligently; and you have led this State, because your Association is the father of the Health Department of North Carolina. It was born in your body. While the State is in partnership with you, yet it was your work; and you have led it until I am glad to say that we have now, all things considered, the strongest State Health Department in the United States. At last, you have excited the interest of the people, and you now command the approbation of practically the entire intelligence of the State. We ought to work wonders in the next few years.

Some people say that I want to be known as the "Good Roads Governor of North Carolina." This is not true. My ambition is to be known—at least, for a while—in the traditions of North Carolina, as the "Health Governor." Good roads are very important, and I hope to see ours the finest system of highways to be found in the Republic; but good roads are not of any account to sick or dead folks. It is much more important to have a healthy population.

I want to assure you and all the people that I am in profound sympathy with your deliberations and your suggestions for the protection of the health of the people of this State and I have been educated to think your profession to be the real healer of sick folks; and I know that if sickness and suffering and death are to be overcome, as death can be to a certain degree, it must be done by your great profession, and by none other.

It is now my pleasure to present to you Dr. Stuart McGuire, of Richmond, Va. (Applause.)

"BACK TO THE CONSTITUTION"

STUART MCGUIRE, M. D., RICHMOND, VA.

This is the first time I have attended a session of the Medical Society of the State of North Carolina since I was elected one of its honorary members and I desire to take advantage of the opportunity to thank the association for the distinction it has conferred upon me. I know the honor is not lightly bestowed and the fact it has come to me adds another obligation to the indebtedness I owe to the profession of the old North State.

The reason I have not come earlier to express my appreciation is the fact that the last three years have been the busiest and most eventful of my life. During them I have seen service with the army overseas, I have participated in a surgical operation, in which I was at the wrong end of the knife, and I have renounced all my previously expressed convictions on the subject of matrimony and taken unto myself a wife. I do not regret these adventures, although I sincerely hope it will not be necessary ever to repeat any of them.

When I received an invitation from your President and permission from my wife to attend this meeting, I began the preparation of a paper on a technical subject to read before the surgical section, but when I got the program and found I was assigned a place as a speaker at one of the general sessions, I decided to choose a subject of more popular interest. There is now a Governatorial contest going on in Virginia in which one of the candidates has taken as his slogan, "Back to the Constitution." He claims that laws are often enacted which are based on expediency and contrary to the Constitution of the State. Whether he be right or wrong, I do not pretend to say, but his phrase is catchy and I propose to adopt it for my text this evening. For just as States have Constitutions, so patients have constitutions, and just as the neglect of the one will cause statesmen to degenerate into mere politicians, so neglect of the other will cause surgeons to degenerate into mere operators. The subject I wish to present in a suggestive way is the influence of the constitution of the patient on the result of a surgical operation.

There are some operations, such as the relief of a strangulated hernia or the removal of a gangrenous appendix, which are so urgently demanded for the immediate purpose of saving life, that the surgeon has no choice and nothing is considered but the one great need. These are imperative operations and must be done regardless of risk. There are other operations such as the correction of a deformity or the relief

of some chronic ailment which, however, desirable, are not essential to the patient's life. These are elective operations and should not be performed without considering the danger to be incurred on the one hand and the benefit to be hoped for on the other.

In estimating the danger of an operation the surgeon is too apt to base his opinion on statistics contained in text books and encyclopediæ. Figures are proverbially unreliable. Thus, for instance, the statistics of old operations such as ligations and amputations are usually a record of pre-antiseptic surgery and do not represent the work of today, while the statistics of more recent operations, such as thyroidectomy or gastroenterostomy are usually the record of master workmen, like Kocker and Mayo and do not represent the danger of these operations in the hands of the average surgeon. In deciding whether or not to advise a patient to undergo an elective operation, the following factors should be considered.

First: The gravity of the operation and the relief to be expected from its successful issue.

There is no operation devoid of risk and some are attended by great danger. Patients are occasionally unreasonable and insist on having a serious operation done for some more or less imaginary ailment. Unless the operation is safe and there is a reasonable assurance that the patient will be materially benefited, he should not be subject to an elective surgical ordeal.

Second: The ability and experience of the surgeon.

No courageous doctor should fail to undertake an operation if the patient's condition is urgent, if delay means death and if no more experienced surgeon is available. Competency is a relative term and the man on the ground should endeavor to afford relief or else he fails to measure up to his responsibility.

It is different, however, when the disease is a chronic one and the patient could be safely moved to a hospital or await the arrival of a surgeon from a neighboring city. A patient is entitled to the best possible prospect of prolonged life or restored health that his resources permit. No conscientious surgeon should undertake an operation without asking himself whether he has the skill to do it satisfactorily. In many cases he can honestly answer the question in the affirmative. In some cases, while there may be a doubt in his mind, he is justified in operating by the fact that the patient has not the physical strength to bear transportation or the financial means to bring a surgeon from a distance. In other cases, however, the attendant must recognize the fact that some men in the profession who have devoted their lives to special lines of work are more competent to treat the case and when

the patient has the physical and pecuniary power to secure their services, it is his duty to place the case in their hands. The obligation is so universally recognized that the sacrifice it entails on the family physician is not often appreciated by the laity and sometimes not by the specialists who are benefited.

Third: The general condition of the patient, or the consideration of the personal factors in the individual case which influence the result of an operation. It is often said, sometimes seriously and sometimes satirically that the operation was a success but the patient died. In such a case the indications for the operation may have been plain, but the contra-indications were either overlooked or disregarded. The operation may have completely corrected the condition from which the patient suffered, it may have been perfect in its technique and brilliant in its execution, but the patient may have lost his life from some complications which could have been foreseen by more careful preliminary investigation. Many surgeons have had uncontrollable hemorrhages to follow the removal of a small tumor, owing to the patient having hemophilia, or have had gangrene develop in a wound owing to the existence of diabetes, or have had suppression of urine to follow owing to the presence of nephritis.

Sir James Paget in one of his classical lectures, says: "Never decide upon an operation, even of a trivial kind, without first examining the patient as to the risk of his life. You should examine him with at least as much care as you would for life insurance. It is surely at least as important that a man should not die or suffer serious danger after an operation, as that his life should be safely insured for a few hundred pounds."

Two separate and independent examinations should be made of every surgical patient; the first for the purpose of diagnosis or the determination of the condition to be corrected; and the second for the purpose of prognosis or the determination of the safety of the operation. In forming an estimate of the latter many factors have to be taken into consideration, such as age, sex, race, habits of life, constitutional diseases and visceral disorders. I cannot discuss all of them tonight, but I will take up some of the most interesting and important.

AGE: As a general proposition it may be stated that patients at either extreme of life are poor subjects for surgery.

Children under five years of age take anesthetics badly, often suffer severe shock from only moderate loss of blood and are difficult to manage during convalescence. They are liable to gastro intestinal disturbances, especially during hot weather, and frequently are the

victims of chicken pox, measles, or other infectious diseases to which they are susceptible. On the other hand, owing to energetic cell activity, of the period of growth, their tissues heal rapidly and are not prone to suppuration. In operating on children, especial care should be taken to avoid the loss of blood and body heat. Dressings should be carefully watched and changed as often as they become soiled. Usually no attempt should be made to keep the child in bed, but from the first it should be permitted to lie on the mother's lap, or be carried about in her arms.

The period from the fifth to the fifteenth year is the golden age of surgery. Here the mortality is least and the results best from operations of almost every kind. This is due to the fact that metabolic processes are active and resistance to infection vigorous, that the various organs of the body are normal and perform their functions satisfactorily, that the nervous system is stable and uninfluenced by regrets for the past or fears for the future, and finally, that the reason and will of the patient have developed sufficiently for the surgeon to secure their acquiescence and co-operation.

Between the twentieth and fortieth year the mortality of operations greatly increases. This is due to the sexual development attended by the possibility of excesses, abnormalities and diseases, also to the cares and responsibilities of maturity often leading to neurasthenia from excessive work and worry. And finally, there may be added the injurious results of addiction to tobacco, whiskey or other drugs, and of other forms of dissipation.

In patients past forty years of age the mortality from operations is nearly three times as great as in patients under twenty. As a rule old people are severely shocked from loss of blood or body heat, their wounds heal slowly and their tissues have little power to resist infection. They are head strong, rebellious and intolerant to confinement. Their organs of assimilation and excretion are impaired and their stomachs and kidneys liable to break down. Taking it all in all, old age is a greater bar to surgery than any other condition, unless it be chronic alcoholism. It must be remembered, however, that senility is not measured in years. Surgically speaking, a man is as old as his arteries. In impressing this point, Sir James Pajet says: "They that are fat and bloated, flabby of texture, torpid, wheezy and incapable of exercise, looking older than their years, are very bad."

"They that are fat, florid, and plethoric, firm skinned and with good muscular power, clear headed, and willing to do work like younger men, are not, indeed, good subjects for operations, but they are scarcely bad."

"The old people that are thin and dry and tough, clear voiced and bright eyed, with good stomachs and strong wills, muscular and active, are not bad; they bear all but the largest operations very well."

The above was written many years ago and must now be somewhat qualified. Modern surgery with its short period of anesthesia and its new agents of anesthetics, with its diminished loss of blood, freedom from infection and provision for adequate drainage, has made it safe to do operations on the aged, which only a short time ago would not have been justifiable.

SEX: Other things being equal, women bear operations better than men. This is due to the fact that they are designed for maternity and are naturally endowed with more passive endurance; that they are more confiding and trustful and place greater confidence in the assurances of the surgeon; that they are more tolerant to confinement to bed, because they are not accustomed to active outdoor life; and finally, they are more temperate and regular in their lives, and not as frequently the victims of excesses in food and drink.

On the other hand, menstruation, pregnancy, lactation and the phenomena of the menopause give to the sex the possibility of complications to which the male is not subject. As a rule, operations should be avoided during menstruation, as the period is frequently attended with nervous and digestive disturbances. The time of election, especially in gynecological work, is the two weeks midway between the completion of one period and the beginning of the next. In emergencies, however, an operation may be done during menstruation without misgivings, as usually no ill effects result.

It is also undesirable to do an operation of election during pregnancy, as it entails the possibility of miscarriage and of kidney breakdown. The danger is more theoretical than real, however, as hundreds of abdominal sections have been done on pregnant women, for appendicitis and other abdominal diseases without interference with gestation.

It is also inadvisable to operate during lactation, because the woman's strength and resistance are below par, and if she continues to nurse the child she will have an undue tax upon her; while if she ceases to do so, there will be the danger of trouble with her breast.

RACE: The influence of race on the result of an operation is a question of interest, but not of great practical value. It is stated that a Chinaman makes the best patient on earth. In America, especially in the Southern States, there is good opportunity to contrast the respective resistance of the Caucasian and the Negro. Surgeons of large experience in operating on both races are practically unanimous

in the opinion that the black man is a better subject than the white man. This does not apply to the mulatto, for he follows the rule of the mongrel, and has the vices of both parents and the virtues of neither. It is obvious even in the life of an individual that the pure negro is losing the immunity formerly enjoyed to certain diseases, and is developing predispositions which render him a less favorable subject for operation. Before the Civil War, insanity was almost unknown in the race, tuberculosis was not common, and venereal diseases of rare occurrence. With education and syphilization he is now the victim of various nervous disorders; with unhygienic surroundings and scant clothing he is a frequent victim of the Great White Plague, and with improper food, eaten at irregular intervals, his digestion has become impaired, and he is suffering more and more frequently from gall stones, appendicitis, and diseases of the kidneys. The day will come when the degeneration of the whole race will have reached a point to make it an accepted fact that they are poor subjects for surgical work.

VIGOR AND WEAKNESS: Paradoxical as it may sound, the strong, robust man frequently does not make as good a surgical patient as one who is feeble and wasted by disease. He may have huge limbs and mighty strength; he may never have had an illness in his life, and boast the constitution of an ox, but he is a poor subject for the surgeon's knife. He is accustomed to fresh air and an active life; his blood vessels are full and oxygenation of the tissues is rapid. His food has been large in quantity and gross in quality. When misfortune overtakes him there is no time to accommodate himself to new conditions, and the whole habit of his life is suddenly changed. To this is added the shock of his accident, the horror of an operation, and the dread of the future. Just the contrary is true with the chronic invalid, who has been acclimated to bed life by long weeks of invalidism, whose circulation, respiration, and digestion have become adjusted to his condition, and who has been brought to view the approaching operation as a means of relief of pain and restoration to health. Of the two types described the last will be well first.

OBESITY: As a rule, a fat patient is a bad patient. If the obesity is hereditary and the general health good, it is not as bad as when the fat is due to gluttony, indolence, or beer drinking. An obese patient is an elephant on your hands. He usually breathes with difficulty and cannot assume a recumbent position. It is hard to move him in bed, and difficult to prevent the formation of bed sores. The skin is usually thin from pressure, and its edges difficult to approximate. The subcutaneous fat has little vitality and readily breaks

down and liquefies. Infection once taking place, pus burrows far and wide, and is drained with great difficulty. Sometimes such patients die suddenly from fat embolism; again, they become exhausted and prove an easy victim to intercurrent diseases. If recovery takes place, convalescence is always tedious and prolonged.

ALCOHOLISM: The most unpromising patient who ever comes to a surgeon is the chronic alcoholic. Constant drinkers who are never drunk, and yet who are never sober, are worse subjects than those who get on periodic sprees. The gravity of the risk in the individual case will depend on the length of time the individual has taken stimulant, the average amount consumed daily; the presence or absence of tremor of the hand or alteration of the knee jerk; the existence of gastritis, as indicated by anorexia, nausea or vomiting; and the condition of the liver, kidneys, heart, and blood vessels. No operation except the most imperative should be done on the alcoholic, because of the danger of administration of the anesthetic, because of the depraved condition of the tissues and consequent lack of resistance to infection, because of the liability of the kidneys to stall or the heart to run away, and because of the danger of the development of wild and uncontrollable delirium. When an operation is unavoidable, but not immediately necessary, the patient should be prepared for it by diminishing or withdrawing the stimulant. When an immediate operation is necessary, it is better to continue the alcohol until the period of greatest danger is passed.

AFFECTIONS OF THE NERVOUS SYSTEM: Hysterical patients usually give a great deal of trouble before the operation, but do very well after the ordeal is over. A nervous woman who wishes to tell of the surgical adventures of her friends, who desires to discuss every step and detail of her own operation and tell how she wishes her case managed, and who is possessed of exaggerated fears as to the complications which may develop or the ultimate result which may follow, usually, after the operation, becomes a model patient. Her imagination enters upon fresh fields and she becomes hopeful and courageous, and at once begins to plan a new life of activity.

The neurasthenic, however, is a different subject, and woe betide the incautious surgeon who operates on one. Occasionally neurasthenia may be due to chronic appendicitis, uterine displacement, or some other cause which can be corrected and the patient cured. But in a large majority of cases the neurasthenia is due to a disturbance of the general body nutrition, and no operation will prove of benefit.

The victim of neurasthenia wears out the patience of his family and friends, and in order to secure a sympathetic listener, and in order to demonstrate to the community the serious nature of his disease, he goes from surgeon to surgeon and from hospital to hospital, offering himself as a bloody sacrifice to his curious form of egotism, and glorying in his martydom. Surgery does this class of patients no good, but deepens, rather than relieves, the neurasthenia.

The insane are usually good subjects for surgical operations. The regular life of an asylum is conducive to good health, and the absence of mental anxiety on the part of the patient is a favorable factor. Mayo, who has done a great deal of work on this class of cases, states that they are entitled to just the same surgical treatment as the sane —no more, no less. In other words, insane people should be operated on to relieve them of hernia, gall stones, and abdominal tumors, but hernia, gall stones and abdominal tumors should not be operated on to cure the patient of insanity.

In considering the general condition of the patient to determine the advisability of an operation in addition to the factors of age, sex, weakness, obesity and alcoholism, there must also be considered constitutional diseases such as syphilis, gout, rheumatism, malaria; and visceral disorders such as those affecting the heart, lungs, kidneys, bowels and other organs.

I have not time to touch on these subjects, but I hope I have said enough to show that a true surgeon must be more than a good operator, just as a true statesman must be more than a mere politician, and to serve the patient and the State, both must go "Back to the Constitution."

Dr. Anderson, President: I am sure the Society would regard me negligent were I to fail to thank the distinguished gentlemen for the high entertainment they have afforded us this evening. We have always cherished their names, and shall hold them in grateful memory. As a mark of our appreciation of Governor Morrison's presence, I move that we give him a rising vote of thanks. (This was carried.) I pledge him the unanimous support of every doctor in North Carolina should he run again for Governor.

Governor Morrison: Dr. Anderson is bold, because he knows that under the Constitution of North Carolina, I cannot run for Governor again.

Motion to adjourn was then made and carried at 10:30 P. M.

THURSDAY MORNING, APRIL 28

The meeting was called to order at 11:30, A. M., by Dr. T. E. Anderson, President.

Dr. Anderson: The House will now be in order for the General Session of this Society, and we will take up the business before us. The Secretary will present the report of the action of the House of Delegates.

Dr. L. B. McBrayer, Secretary: The House of Delegates wishes me to report that the Nominating Committee, after careful deliberation, recommended the names attached hereto as the officers of this Society for the ensuing year. The same was presented to the House of Delegates and unanimously approved by them.

President.....Dr. Hubert A. Royster, Raleigh
First Vice-President.....Dr. William T. Parrott, Kinston
Second Vice-President.....Dr. B. C. Nolle, Charlotte
Third Vice-President.....Dr. J. R. McCracken, Waynesville
Secretary-Treasurer.....Dr. L. B. McBrayer, Sanatorium

Committee on Scientific Work

Dr. E. J. Wood.....Wilmington
Dr. Richard N. Duffy.....Newbern
Dr. C. A. Shore.....Raleigh

Publication Committee

Dr. P. P. McCain.....Sanatorium
Dr. C. A. Julian.....Thomasville
Dr. W. L. Dunn.....Asheville

Committee on Obituaries

Dr. T. J. T. Battle.....Wilson
Dr. Arch. Cheatham.....Durham
Dr. H. H. Briggs.....Asheville

Public Policy and Legislation

Dr. John B. Wright.....Raleigh
Dr. J. M. Parrott.....Kinston
Dr. Cyrus Thompson.....Jacksonville

FINANCE

Dr. J. W. Long.....Greensboro
Dr. E. S. Bullock.....Wilmington
Dr. E. B. Glenn.....Asheville

DELEGATES TO AMERICAN MEDICAL ASSOCIATION
(Elected in 1920 for a term of two years)

Dr. J. F. Highsmith (two years).....Fayetteville

DELEGATES TO THE VIRGINIA MEDICAL SOCIETY

Dr. W. C. Willis.....Rocky Mount
Dr. C. V. Reynolds.....Asheville
Dr. J. B. Bullit.....Chapel Hill
Dr. G. Grady Dixon.....Ayden

DELEGATES TO SOUTH CAROLINA MEDICAL ASSOCIATION

Dr. W. F. Hargrave.....Kinston
Dr. A. S. Root.....Raleigh
Dr. D. A. Garrison.....Gastonia
Dr. R. V. Brawley.....Salisbury
Dr. John W. McConnell.....Davidson

The place of the next meeting of the Society, in 1922, Winston-Salem.

On motion the report of the House of Delegates was approved.

DR. ANDERSON: The Chair will appoint Drs. Mudgett and Battle to escort the incoming President to the platform. (Great applause.)

Gentlemen, my endowments of speech and limitations will not permit me to portray to you all the many beatitudes which the incoming President includes in himself. I want to congratulate that Nominating Committee on the rare discernment which they exhibited in the selection they have made of Dr. Royster for this high place; and I want to say that which we all feel, I am certain, that his elevation to this high place finds a response in every member of this Society. We are delighted that, after a life of splendid work and endeavor, and contribution to medicine, and what he has done for us, he has attained this position. It is a delight now, in his old age, (laughter) to confer this honor on him; and, for the Society, it gives me great pleasure to welcome him up to this lofty place, and bid him good cheer, and hope for him the best incumbency that the Chair has ever had, with great hopes and expectancy that he will come up to it. There is no doubt about it, in other words.

I want to tell him that although he has accepted this position and come into it—perhaps he has given it thought, I do not know; but, my friends, perhaps he does not know the obligation which he has assumed, does not realize what he has taken on himself. This obligation was placed on me, a young man, (laughter) a year ago; and I retire from it now, broken in mind and body, an old man, impaired and bowed down, to wait for the summons, incapacitated, never to contribute anything more to anything, dependent on the exertions of my wife for support. I am sorry that we have not a fund at the command of these broken, retiring officers of ours, that are thrown upon the reefs and left to slowly disintegrate.

Gentlemen, I have now the great pleasure of presenting to you your President, Dr. Hubert A. Royster, of Raleigh. (Applause.)

Dr. Royster: Mr. President, your flattering introduction gives me a chance to say that your appearance belies your words, for as to the top of your head, no one expects grass to grow on a busy street, and as to your temporal regions, no one paints an old house white. The fact is that you have let me down easily by saying in your Presidential address that you would set such a low standard for those that come afterwards that the wayfaring man, though a doctor, need not err therein. But friends and fellows, you have conferred on me the very greatest honor which I have ever received. Both here and elsewhere, at your hands and at the hands of other organizations, I have received what I regarded as great rewards for work that I had honestly tried to do; but nothing that has ever come to me has touched me so much as this honor, this great honor, conferred by the representatives of about fifteen hundred physicians of North Carolina. (Applause.)

My feelings of pride, however, are almost overcome by my feelings of humility; because after all, I did not know, really, that I deserved this position. Still, if you had to give it to me, this is the most opportune time at least for me. I am rounding out, in my life, a period which has been cut in two in the middle by membership in this Society. When I became a member, twenty-five years ago, I gave little thought to any such feelings as I have today; but I began to love this Society at that time, and I have loved it ever since. I have given my best work to it. I have tried to keep to its standards and ideals, and I have never forgotten the faith of the fathers. May I say that when I came to this Society, I met, and learned to revere, some of the men who are now gone? Think of O'Hagan and Duffy, and Murphy, and Thomas; and then I came up through association with men whom

we rejoice to have with us now—Lewis, Thompson, Knox and men of that type. They have been almost fathers to me. The generous support of my own contemporaries has brought me the most durable satisfaction of my life. "I have been young, and now I am old; yet never have I seen the righteous forsaken or his seed begging bread."

Then I am approaching, now, the time when the younger men of this Society are going on to the fulfilment of the promise that we expected from them. As I look at the personnel of this four hundred men gathered here, I cannot help going back just five years, and seeing the wonderful progress in their looks, feelings, work, ambitions, desires and ideals. So, if I am middle-aged, I may hope that I can still say:

> "We think our fathers fools, so wise we grow;
> Our wiser sons, no doubt, will think us so."

The fact that I have received this position at the hands of my friends (because I take it that we are all friends, and working for the same cause) gives me the opportunity to say that there are numerous problems which must be worked out in the next twelve months. We are coming, in the question of policy, improvement and progress, to a certain crisis; and I promise you that, with your co-operation and the assistance of the men in the Cabinet, so to speak, of the President, I will give my whole-hearted endeavor to carry on to the utmost the things that were started before I had anything to do with them, backed up by the ideals of the older men and to push through the progressive things by the help of the younger men, of whom we expect so much. You see, I have a right to feel elated, but also humble, being pressed down somewhat by the realization of responsibility; but we will accomplish our aims, and we will by the help of all, continue to have what I believe are the most successful meetings of any State Medical organization in America. (Applause.)

Dr. Anderson: I will ask Dr. Cyrus Thompson to return the thanks of the Society for the entertainment which has been provided for us.

Dr. Cyrus Thompson: Those who know me intimately, know that I am a very devout man; and that my moving spirit, my *motif*, as I might say, is, "In all things, give thanks." One of the manifest troubles in living is our failure to adjust ourselves to the world about us; and we find, therefore, too little to be thankful for. I never get up of a morning that I do not feel like the fellow in Florida, where the atmosphere was balmy and the trees full of oranges. He jumped out of bed and said, "Thank God, I am still living!" This is a

beautiful world and a splendid place to live in, and there is no reason at all why any man here should be grouchy; and yet you find people that are so, without right to be, and again, you find some unfortunate souls with exceedingly little to be thankful for, who still are thankful and remarkably cheerful, living in that Harding state of normalcy, which defined in my own life and philosophy, should be spelled normal- Cy.

In illustration of what I mean, I recall the story of two old women who were talking together about having lost their teeth. One said, "I have only two teeth left." The other said, "That is all I have, and they do not do me any good, because one is an under-jaw tooth, and the other is in the upper jaw and on the other side." The first one said, "It's the same way with me, only mine are both on one side, and thank God, they hit!" (Laughter.) There is much for us all to be thankful for. There is every reason for us to be happy; and when we leave our homes to go out among strangers and as we gather for our Annual Meeting, the good fellowship demonstrated on every hand makes us thankful for our coming together. While we cannot build tabernacles and stay, we are glad that we have gathered together, and are reminded of that passage of the Scripture, Dr. Anderson, which says, "Forget not the assembling together of the saints," if that is Scripture. I endeavor to quote, because Dr. Anderson must not have a monoply on holy things.

Every where we go we are delightfully entertained. Nowhere do we go where we are better treated than by the Medical Society of Moore and Mr. Tufts; (Applause) and while I should be thankful, with cause, in any city of North Carolina for the entertainment that it would give, I am especially thankful, Sir, and appreciative of the entertainment which is always given us in this delightful place in the County of Moore. There is no place like Pinehurst. It is in the land of the long-leaf pine; and, somehow, it has a peculiar geniality about it, in God's fresh air of the sand hills. The weather does not behave here as it does anywhere else. It will not even frost or freeze here, when it will do so farther east on 600 feet lower level. The land is overflowing with milk and kindness of heart; and in a little while, it will have on these remarkable orchards, peaches, when none can be found anywhere else in North Carolina.

I move you that the thanks of this Society be extended to the membership of the Moore County Medical Society, to the master of Pinehurst, Mr. Leonard Tufts, and to all the good people of this goodly land for the excellent hospitality which they have given us on this third occasion. (This motion was seconded and carried.)

Dr. M. Eugene Street, President Moore County Medical Society, Glendon: Mr. President, Dr. Thompson says that we have much to be thankful for. We also have, in living, very much to be hopeful for. There is one hope that is worth living for, and that is the hope that the Medical Society of North Carolina will again give us the pleasure of having them meet with the Medical Society of Moore County at Pinehurst.

Dr. James B. Bullitt, Chapel Hill: I want to present a resolution to the General Session recommending that the Program Committee be instructed to omit from the program in future, the Section on Anatomy, Pathology, Physiology and Bacteriology. If I have a second, I should like to explain my reasons. (The motion was seconded.)

Dr. Bullitt: I want to say that we have very few men in North Carolina who are interested in these subjects, as such; so it is impossible for a Chairman of that section to get up a suitable program on these laboratory branches. Even if he does, the essayists have no audience; for there are too few who take an interest in these subjects. On the other hand, any paper that anyone desires to offer on these subjects can be read in another section. No strictly technical papers are in order in an association such as ours; and papers that have a definite clinical bearing, but are on these subjects, should be offered in the section to which they have the closest relation.

A paper on the pathology of the eye, for instance, would be of value to the ophthalmologist, but would mean nothing to anyone else; while one on surgical pathology would be of interest to the surgeon; and so with the other sections that exist. So, in fairness to the Chairmen who have had difficulty in trying to get up a program, and to the members who are doing work along these lines, I think that we should abolish that section and have its papers distributed among the sections to which they properly have some relation.

Dr. Anderson: This should be referred to the House of Delegates for action, as all questions of this sort must be. The point is well taken, and will go through the usual channels for its settlement.

If there are no further remarks, the Sections will now resume their session, and the Chairmen will go on with papers.

MEMORIAL EXERCISES

WEDNESDAY, APRIL 27, 8:00 P. M.

REPORT OF OBITUARY COMMITTEE

Mr. President and Fellow Members:

Each succeeding year adds but another list of names to our departed dead. It is a beautiful custom that we approach with reverent thought this solemn hour to give expressions of our sorrow for those of our comrades who can be with us no more. It was only yesterday they moved among us, the possessors of generous life and pride of health. Actors in the seeming drama of life, they played their respective parts, and freighted with the honors of their service, they drew their mantels about them and entered into their haven of rest.

May we who now gather to do honor to their memories and their labors be ever mindful of that coming hour when we, too, will pass through the valley, registering our names upon the roster of the dead, in answer to that final summons which will surely come to all men.

> Leaves have their time to fall
> And flowers to wither, at the North winds breath;
> But all, thou hast all seasons for thine own,
> O Death.

Your Committee reports the following names of those who have died during the year:

Dr. George G. Thomas, Wilmington
Dr. A. S. Harrison, Enfield
Dr. W. P. Swett, Southern Pines
Dr. A. P. Dickson, Raeford
Dr. J. T. Reives, Greensboro
Dr. Frank Thigpen, Hookerton
Dr. A. F. Jones, Cameron
Dr. Banks Withers, Mooresville

Your Committee has made diligent effort to ascertain from the secretaries of the various county societies, a correct list of the deceased members, and we submit the names herein reported as those upon whom we could secure information.

Very respectfully submitted,

E. G. Moore,
E. J. Wood,
B. O. Edwards,
N. D. Bitting,
Committee on Obituaries.

A. F. JONES

BY

Moir S. Martin, M. D., Mount Airy

The sudden death of Dr. A. F. Jones, at Cameron, North Carolina, on December 10th, 1920, marked the end of a promising career. Dr. Jones was born February 20th, 1890, at Ararat, Surry County, North Carolina. Reared on the farm, he received his education in the common public schools of his native county. After choosing his profession, he entered the North Carolina Medical College and was here for three years, the fourth year being spent in Richmond, where he graduated in 1915. Returning to his native county, he began practice at Ararat, North Carolina, where he was located until entering the Army, as a lieutenant, in October, 1917. He served his country from this time until June 18th, 1919, making a brilliant record, and during this period was promoted to captaincy.

A short time after being discharged, he took a Post-Graduate course at Tulane. After returning, he resumed his practice at Ararat. In June, 1920, he moved to Cameron, North Carolina, where he rapidly built up a lucrative practice.

In his death the medical profession has lost an able physician, and those of us who knew him well, a loyal friend.

A tribute from his home paper:

> A gloom o'erspreads our town over the tragic ending of the life of Dr. Alex F. Jones, who was fatally injured at the Seaboard station Friday morning, his car which he was driving, being struck by No. 4, one of the through fast-bound trains for the North.
>
> Dr. Jones was coming across the creek in East Cameron, where he had been to call on some patients, and with other calls to make, and a business trip to Carthage, he was hurrying home. The "Shoo-Fly" being due at this hour, he was probably looking in a northern direction for it, and failed to see No. 4 coming from the South, this train being hidden from view by the swamp, and a couple of houses near the track. How it happened, none will ever know. He was struck just as he crossed the railroad. His car was torn into splinters, and he was found lying on the rail track, no outside bruises or disfigurement, but every bone in his body seemed to be broken and shattered, and life seemed extinct.

A physician who was on the train came out and administered a hypodermic of morphine and it was noticed that he seemed to breathe. In the hope of saving his life, he was placed on the train to be carried to the hospital at Sanford, but he died before reaching Lemon Springs.

Dr. Jones had been a practicing physician in Surry County, had served overseas ten months, came home and was married to Miss Opal Whitaker.

He was an honest, upright and conscientious man and physician. A man who improved on acquaintance. A man devoted to his profession and to his wife; she devoted to her husband and home. He will be missed as a progressive citizen and as a physician. Long will his kindly eye and pleasant voice be missed in the sick room. Not long since in conversation with him in a sick room, the subject came up about professions. He made the remark that he chose his profession because it was a work that helped suffering humanity. Let us hope that God was merciful and did not let him suffer even one physical or mental pain."

WILLIAM PLUMMER SWETT

BY

W. C. Mudgett, M. D., Southern Pines

During the early morning of April 13th, Dr. Swett was aroused by the alarm of fire; hastily dressing, he perceived that what he first thought was a small fire, bade fair to be a conflagration. As usual, thinking only of others, he hastened to one of the hotels directly in the path of the flames, urging all the guests to hurriedly gather their effects and proceed to a place of safety. While engaged in this work he was overcome by a heart attack and died instantly.

Dr. William Plummer Swett was born in Bethel, Vermont, November 3rd, 1853. His father was Reverend Josiah Swett, an Episcopal clergyman and a man deeply interested in education. His mother was Lucy M. Wheeler. Dr. Swett was one of ten children, all of whom were in professions.

He was a graduate of the University of Vermont in the class of 1876. He commenced the practice of medicine in Terryville, Conn., where he enjoyed an extensive practice. On July 25, 1883, he married Susan Baldwin of Terryville, who was the greatest aid and inspiration to him for thirty-two years. She died June 30, 1915. They are survived by three children and two have gone before, one a lad

of sixteen and the other a little girl in infancy. Finding the rigor of the Northern winters too severe, the family moved to Southern Pines nearly thirty years ago.

He received his license to practice in North Carolina in 1893 and became a member of this society in 1901. He was President of the Moore County Medical Society in 1907.

As a physician he was proud of his profession and gloried in its achievements. He was sincere, ethical, honorable, despising that which suggested commercialism, forgetting himself and considering only the greatest good for his patients.

As a citizen he took a real interest in all things pertaining to the growth and improvement of his community and was ever ready with his help in anything for its advancement and betterment. He was one of the pioneers and leaders in the peach industry which has grown to mean so much to this section.

He early in life connected himself with the Episcopal church and was also prominent in the Masonic fraternity, having held the highest offices in all the bodies including the Knights Templar.

His sudden death cast a great shadow over the community in which he had lived and labored so many years and the great number of people who followed the remains to the last resting place attested the high regard and profound respect in which this good man was held. He died in the very manner in which he had expressed the hope that his final summons might come; still active, still in service.

He married May 30, 1918, Grace M. Moseley, who also survives him.

ALBERT PICKETT DICKSON

BY

R. B. Wilkins, M. D., Raeford

Dr. Albert Pickett Dickson, long one of Hoke County's most useful men, died at his home near Raeford Thursday morning, April the 14th, 1921. He was born October the 22nd, 1853, and in his 68th year when he died. His place of birth may be designated as Black River, in what is now Bladen or Sampson county.

His father, Calvin Dickson (whose wife was a Miss Fennell of Sampson County) moved to Bladen County, a section known as Carver's Creek, where he died, leaving Dr. Dickson, a child then eight years of age and the youngest of a family of eight children. It was in this community that young Dickson attended private schools and, being offered the free hospitality of a relative's home, and a chance to pursue his studies further, gathered his meager belongings together and

carried them on his back to the relatives's home, walking the distance of forty miles through the wild country alone. In this way he was enabled to attend Clinton high school, in Clinton, N. C.

In 1875 he read medicine under Dr. Neill Graham of Bladen County, and in 1876 attended a course of medicine in Charleston Medical College. Two years later, after great difficulty financially, he graduated from the Medical Department of the University of New York, and began the practice of medicine in Cumberland County upon his return, where he remained two or three years, during which time he married Miss Fannie Wyatt DeVane, daughter of Col. Thomas DeVane. From there he came to Robeson, now Hoke County, where he remained in active practice throughout his career of faithful service.

For prompt attention to calls whether from the rich or the poor, none excelled him in his chosen profession. Through all his arduous public service as a country physician, having acquired the habit and the art of study, (for he financed his own way through school) he therefore was a patient and tireless reader. His brilliant mind and retentive memory, along with his zeal for honesty and impartial justice in the minutest detail, are a few of his outstanding characteristics.

During the first influenza epidemic in 1918, Dr. Dickson went day and night when he himself was far more in need of medical attention and rest than perhaps many of his patients, so much so that his health seemed thereafter to such an extent impaired that he did not recover. From that time his failing powers had their emphatic beginning, until his death.

He knew the pitfalls and privations of ignorance, and sought to avoid them for the younger generation, among which it was their boon that he should live and exert his magnificent public spiritedness. So, with the same indefatigable way so characteristic of him, he championed the cause of the children in his community from the very start, and as a monument to his fight for the emancipation of young minds, the Raeford Graded and High School graces its campus of rare beauty, no less a product of his genius and sacrifice than it is an indisputable boon to its surroundings. It is nothing but highly appropriate that this story should adorn his obituary. It is forcefully substantiated in the additional story of what heritage came to his own children—educated, peaceful and law-abiding, who too, seem to have caught the spirit of devotion to the public weal.

Dr. Dickson was a member of the State Medical Association and also the first president of the Hoke County Medical Society.

To him came the honor of being the father of thirteen children, nine of whom were boys, and the entire number survive him and are past

the age of 21. Five of the thirteen are full graduates of literary colleges, two of these also being graduates of theological seminaries and one a graduate of a medical college. Six of the remaining eight took partial courses in literary colleges.

Surviving him are his widow, Mrs. F. W. Dickson, and the following children: Mrs. Marshburn, Jacksonville, Fla.; J. B. Dickson, Tarboro; Rufus D. Dickson, attorney, Wilmington; Prof. Thomas Dickson, Syracuse University of Syracuse, N. Y.; Rev. A. P. Dickson, Jr., Franklin, W. Va.; Paul Dickson, Raeford; Mrs. Harry Lindeman, Raleigh; Mrs. William Elliott, Fayetteville, R. F. D.; Frank Dickson, Council; Dr. James G. Dickson, Wilmington; William Dickson, Raeford; Miss Helen Dickson, Raeford; and George Graham Dickson, Raeford.

ALBERT PICKETT DICKSON

Dr. Albert Pickett Dickson of Raeford, died on April 14th, 1921, of cerebral hemorrhage, after two years of failing health. Dr. Dickson was born in Sampson County on October 22nd, 1853, and was therefore in his sixty-eighth year. The name Dickson had already honored the medical profession of North Carolina and in him the admirers of Dr. James H. Dickson, who fell on the field of honor in the fight with yellow fever in Wilmington, in 1862, easily distinguish the marks of the clan. Dr. A. P. Dickson was a general practitioner of the old school. He was graduated at the University of the City of New York in 1878. He at once returned to North Carolina and began the practice of medicine in Cumberland County. In 1880 he moved to Robeson County near the Cumberland line, where he lived until his death.

The life and work of Dickson make a complete story of a well-rounded whole. He did the great and the small duties of his sphere conscientiously and well at all times. In all things he exercised that stern conscientiousness which never allowed him to spare himself, but took out of him all that he could squeeze for his patients, whether high or low, rich or poor.

The story of his life is like that of many others: constant demands not to be denied and yet beyond the limit of human strength. After driving for two whole nights and three whole days he was once forced to tie his horse near the road-side and lie down to rest before appearing at his home for he knew full well that there would be others waiting and that their claims on his sympathy would make refusal impossible.

He was the father of thirteen children; nine sons and two daughters, all of whom have reached maturity. It is to his everlasting credit that to five of his sons he gave a college education. Two of his sons also received theological courses of a complete sort after the manner of his Scotch forefathers, and one received a medical education at the University of Pennsylvania: Dr. James G. Dickson, of Wilmington.

Dr. Dickson was the father of the Raeford public school, and later about this school the town was built, for at that time Raeford was unknown. He was the first president of the Hoke County Medical Society and a member of the State Medical Society.

DR. ALBERT PICKETT DICKSON, LONG ONE OF HOKE COUNTY'S MOST USEFUL MEN

Raeford, April 15.—Dr. Albert Pickett Dickson died at his home near Raeford, Thursday morning. The community mourns this loss to itself and to his many friends elsewhere and immediate family. After a second stroke of paralysis he was confined to his bed several weeks, during which time there was little hope for his recovery. His general health had been failing for the past year, and but for his strong constitution and will he could not have left his home at all to transact business.

Dr. Dickson was born in Sampson County in 1853. His father later moved to the west side of the Cape Fear in Bladen County in that section known as Carver's Creek. There Dr. Dickson as a small boy attended private schools, and later entered Clinton high school.

In 1876 he attended a course of lectures in Charleston Medical College. And in 1878, after the required course of study, he graduated in the medical department of the University of New York. He began the practice of medicine in Cumberland County on the east side of the Cape Fear, where he remained for two or three years, during which time he married Miss Fannie Wyatt DeVane, daughter of Col. Thomas DeVane. From there he came to Robeson county, now that section which belongs to the county of Hoke.

For prompt attention to calls, whether from the rich or the poor, none excelled him in his chosen profession. His brilliant mind and retentive memory, along with his love of honesty and justice in the minutest detail, are a few of his outstanding characteristics.

He was a member of the State Medical Association and also the first president of the Hoke County Medical Association. He took an active part in all educational efforts and was largely responsible for

the organization and success of Raeford Institute, now the Raeford graded and high school. In fact, his whole life was devoted to the service of his fellowmen. He barely took time to rest when his health demanded it and the occasion was offered, so eager was he to protect his keen conscience in heroic service. But for that he should have lasted perhaps a little longer as a boon and benediction to his loved ones.

FRANK LAFAYETTE THIGPEN

Doctor Frank LaFayette Thigpen, who died in Hookerton, Greene County, North Carolina, Sunday evening, February 27th, 1921, was born in Edgecombe County, August 28, 1894, being 26 years, 5 months and 29 days old. His parents were Frank LaFayette and Sarah Little Thigpen, and have been dead some time. A step-mother, Mrs. Mamie Rawls Thigpen, three brothers and a sister survive.

His boyhood life was spent on the farm, where he was known as a good boy, with upright purpose.

When he first went from home to school he entered Warrenton High School, Warren County, one of the best preparatory schools in the State. He took four years at the University of North Carolina, and afterwards studied medicine in Jefferson College, Philadelphia. He was soon interned at Southside Hospital, Pittsburgh. Having been transferred to Greenleaf Camp, Fort Oglethorpe, and then to Shelby, Mississippi, he rendered splendid services, ranking as First Lieutenant. He was, therefore, well furnished for his chosen profession, to which he devoted himself with an energy which was decidedly too great for his strength.

This faithful, public servant loved his work, and gave himself exclusively to it, achieving pronounced success.

Dr. Thigpen was a man of noble spirit, true hearted and generous, and had an ever-widening circle of admiring friends.

DR. ARISTIDES SMITH HARRISON

In the death of Dr. Aristides Smith Harrison, the State of North Carolina lost one of its best citizens, the school children of Halifax County one of their best friends and the medical profession one of its splendid physicians. He was born in Brunswick County, Virginia, but his life's work was done in his adopted State of North Carolina, and no native son loved this State better or served it more faithfully than he. Moving to Halifax County in his early manhood, he was

identified thereafter with every movement that looked toward the uplift of the county. For awhile he traveled, then studied medicine at the University of Maryland and after procuring his license, he came to Enfield in 1892, at which place he resided until his death. During this period he was actively engaged in the practice of medicine, and was at all times a leading member of the medical fraternity. His practice was limited only by his desire. He conducted a drug store in connection with his practice, and his reputation of fair dealing built up the splendid business of Harrison Drug Company. In the year 1900 he was elected Superintendent of Public Instruction of Halifax County, and in this position he faithfully served the interests of the children of the county, bringing the public school system of the county to a state of perfection rivalled by only a few of the counties of the State. He endeared himself to teacher and pupil alike, and after he had retired from this office, he was frequently and in many ways shown the esteem in which he was held by those with whom he came in cantact and with whom he served during his long and successful career as Superintendent of the Schools of the county. He was the prime mover in the establishment of the Enfield Graded Schools, and from its organization served as Secretary of the Board of Trustees. As a man, he was of excellent habits, kindly disposed toward his fellow-man, interested in the well-being of those about him, and ever ready to lend a helping hand to the unfortunate. As a physician, he was skillful, learned and attentive; in the sick room he was positive, yet unusually gentle; he studied his patient and his patient's case, and was a diagnostician of marked ability; he was faithful in his attendance at the bed side, and the sick room always seemed brighter on account of his presence. During the dread flu epidemic of 1918, he served his patients with untiring and unceasing devotion, and his activities during that period doubtless had much to do with the break-down which led to his death.

Pure in his family life, devoted to his family interests, he was an ideal husband and father. Active in church work, interested in promoting the morals of the community, a ready and fluent speaker, he was often heard by the citizens of the community in public addresses, at which times he held the interest and aroused the enthusiasm of his hearers.

Altogether he was a man of unusual ability, marked integrity of character, and singularly upright in his walk before his fellowman and his God, and he died, as he lived—a Christian gentleman.

GEORGE GILLETT THOMAS, M. D.

BY

RICHARD H. LEWIS, M. D., RALEIGH

George Gillett Thomas, eldest son of Dr. William George Thomas, a native of Franklin County, and Mrs. Mary T. (Clark) Thomas, sister of the late Governor Henry T. Clark of Edgecombe County, was born in Tarboro, July 14, 1848. When three years of age his parents moved to Wilmington, where his father soon became, and remained during a long life, one of the most prominent and beloved physicians of that city.

Dr. Thomas received his academic education in the preparatory schools of Wilmington and at the Universities of North Carolina and Virginia. At the latter institution he took his first year in medicine, completing his professional training at the University of Maryland, from which institution he was graduated M. D., in 1871.

During the life time of his father, Dr. Thomas was associated with him in practice, but speedily established a high place on his own merit. In a recent letter, Dr. Edward J. Wood says: "As a private practitioner of medicine no man in Wilmington was ever more beloved and probably no man ever enjoyed just the same high grade of practice of a size which must have taxed his strength at all times. He will always be remembered for his devotion to his patients, and these people were with one accord and throughout all the years since his loyal friends. In our home after my father's death, as well as through his long illness, we felt that "Dr. George" was always heaven-sent and needed not to write a prescription. His bright presence seemed to do all that was needed. We will never forget him. His devotion to my father was remarkable for its uniformity. He was never too tired nor too busy and the weather was never too bad to bring him quickly." Added to the above, his intellectual ability and professional accomplishments, it would be hard to draw a better picture of the ideal family physician.

In March, 1899, he was induced by the management of the Atlantic Coast Line Railroad Company to abandon his large and active practice and accept the newly created position of Chief Surgeon and Superintendent of the Relief Department of that great corporation, being made later Medical Director of the same. From the extremely gratifying and appreciative resolutions adopted by the Board of Directors of the Coast Line after his death, I quote: "After careful study and investigation, he supervised the creation of said Relief Department upon broad and efficient lines and has guided it through subsequent years to the benefit of the employees who were members

thereof and the satisfaction of the company. He was the first Chief Surgeon of this Company and organized and has intelligently managed and directed its efficient and successful medical and surgical staff—planned, supervised the erection of, and managed its hospitals and guided its work in sanitation and public hygiene.'' Dr. Thomas' life was filled with varied and active interests in the promotion of which he displayed the intelligence, energy and devotion with which those of us who knew him are familiar.

He was a member of the Delta Psi fraternity, one of the oldest members of the Cape Fear Club, a charter member of the Cape Fear Country Club, and an out of town member of St. Anthony's Club of New York City.

In matters pertaining to the public health, he was very active and useful. Deeply impressed with the importance of protecting his city and State against the importation of communicable diseases, he, in collaboration with the late Drs. Thos. F. Wood and W. G. Curtis (of Southport) after much labor and trouble succeeded in having established by the State in 1895, a quarantine station at Southport. The quarantine board was composed of the three gentlemen named with Dr. Thomas as President and Dr. Curtis as quarantine officer. After several years of usefulness, keeping out yellow fever, while some other Southern ports suffered severely, the United States Marine Hospital Service was induced to take it over. It is interesting to note that its first executive head under that service was another distinguished son of North Carolina, the late Dr. Joseph J. Kinyoun. In 1901 he was elected a member of the State Board of Health and in 1903 President of the same, serving most acceptably and efficiently the full term of eight years.

His strictly medical career has been partly sketched above in the references to his popularity and success as a general practitioner and to his organization and successful administration of the Relief Department of the Atlantic Coast Line in which he showed marked executive ability. He was associated with the establishment in 1876 of the first hospital, the City Hospital, in Wilmington, and was for years a director of the James Walker Memorial Hospital.

He was a much valued assistant to the revered Dr. Thomas F. Wood, in the publication of the North Carolina Medical Journal, writing many of the editorials, and at times, during Dr. Wood's illness, taking over the entire burden of the publication.

Appointed by Governor Bickett a member of the Medical Advisory Board of the Eastern District of North Carolina, he rendered faithful and efficient service to his country during the World War.

For more than forty years, he was an active member of our Society and was recognized as one of its leaders. Appreciation and acknowledgment of his merits and popularity was made by the Society in conferring upon him its highest honors—the Presidency, membership on the Board of Medical Examiners, and on the State Board of Health. His professional life was a very full one and he met its requirements and responsibilities with an intelligence, energy, zeal, tact and conscientiousness that insured the success that was his. In addition to the qualities just enumerated, a just characterization would add courage, the pluck that "stands the gaff," which enabled him in uncomplaining cheerfulness to meet his trying and wearing duties in spite of the weakness of declining health; likewise generosity, and loyalty to friends and duty, which last was perhaps his finest quality.

In social life, Dr. Thomas was the accomplished and courteous gentleman. Unusually gifted as a reconteur, with a keen sense of humor and a memory stored with interesting and amusing material, he was, with his genial manner, a charming man and most delightful companion—greatly beloved by the large circle of friends with whom he was blessed.

He married Miss Minerva Jones of the distinguished Hillsboro family of that name, who, with his youngest son and namesake, survive him. His oldest son, Dr. Pride J. Thomas, died several years ago.

At the time of his graduation in medicine, he was the subject of tuberculosis, but with proper care and a three months residence at a cheese factory on Elk Mountain, near Asheville, it was entirely arrested, and remained so until it became activated again in the last year or two of his life, causing his death in the early morning of September 6, 1920, at the age of seventy-three years.

He was buried from St. James' Church, of which he had been a member for many years, and, as the shadows of evening were falling, was laid to rest in Oakdale Cemetery.

After a long and useful life, full of brightness and cheer, he rests from his labors and his works do follow him.

GEORGE GILLETT THOMAS

BY

E. G. Moore, M. D., Elm City

Mr. President and Gentlemen:

I am conscious that no words of mine can add further testimonial to the life and character of our deceased friend, yet I feel constrained to express a brief personal tribute to him whom we honored in life and whom we now mourn in death.

GEO. G. THOMAS
Wilmington, N. C.

George Gillett Thomas was neither a common man nor an ordinary doctor. Coursing in his veins was the rich inheritance of a noble ancestry, and imbibing from his illustrious father not only traits of disposition and character, his contact and association with him wielded that silent influence which converted him to the faith of his high calling and chosen profession.

In whatever sphere of activity he might have cast his lot he would have achieved a successful career for he possessed to an eminent degree the very elements of character so essential to manly achievement.

Like the sturdy oak above the fog and mist of the commonplace, he stood, a living exponent of highest ideals, expressing in his striking personality that cultured aristocracy of mind which gave him prestige and leadership among men.

Every gift of honor within the society was bestowed upon him not by design or intrigue or accident, but as a meritorious compliment of his fitness and a just sense of appreciation of his valued service to his society.

He was not without his faults, yet his virtues like the clustering galaxy of many stars shone so resplendently as to illuminate the very footpaths of every assembly in which he moved.

He was the soul of honor, he betrayed no trust, he made no compromise with truth, he was faithful to his friends, generous towards his enemies and true to himself. He lived a useful life, bristling with activity, energy and purpose and ceased his pilgrimage at the foot of the hill, surrounded with the halo of sunsets glow and glorified with the vision beyond the dark, of that rest vouchsafed to the faithful, eternal in the heavens.

He is gone, but not forgotten. He is dead, yet shall he live again.

There is no death,
What seems so is transition;
This life of mortal breath
Is but a suburb, of the life elysian
Which we call death.

DR. BANKS WITHERS

Dr. Banks Withers was born at River View Farm, Mecklenburg County, December 27, 1869. He graduated from Davidson College, 1891. For two years he taught school then entered medical college. He graduated from University of Maryland, in 1896. Moved to China Grove the same year where he had a large country practice for 24

years, when he moved to Mooresville, N. C., in 1918. He died at Charlotte Sanatorium, November 6, 1920.

Dr. Anderson, President: I want to thank Dr. Moore, the Chairman of this Committee, for the splendid manner in which he has discharged his trust, and to tell him that the literary excellence exhibited in presenting this report to us has added a charm to this solemn occasion which is felt by us all.

Fulsomeness prevails almost always in paying tributes to the dead, but I want to say that when it comes to Dr. George Thomas—the other gentlemen I did not know so well—the remarks of Dr. Lewis and Dr. Moore find a ready response in the heart of everyone here who knew him. We all know that this characterization has not been overdrawn; that it has not been portrayed even as highly as it might have been or could have been, while so beautifully done. I wish that I were able to add my tribute of appreciation of Dr. George Thomas. He adorned this Society; he adorned it personally in body and in mind. He contributed much to it. He was one of the most valuable members which this Society has ever had, and it is well for us to pause a moment here to pay tribute to this man of splendid merit.

I thank the gentlemen of the Committee for the manner in which they have discharged their duty.

Upon motion by Dr. Cyrus Thompson, the report of the Committee on Obituaries was adopted as the expression of the Society.

PROCEEDINGS OF THE HOUSE OF DELEGATES.

TUESDAY, APRIL 26TH, 2:30 P. M.

The House of Delegates was called to order by the President, Dr. Thomas E. Anderson. The roll was called and the following delegates were reported present:

Alamance	J. R. Parker
Bertie	F. H. Garriss
Buncombe	E. B. Glenn
	M. L. Stevens
Burke	W. H. Kibler
Cabarrus	William H. Wadsworth
Carteret	B. F. Royall
Catawba	J. H. Shuford
Cherokee	N. B. Adams
Cleveland	E. B. Lattimore
Cumberland	D. G. McKethan
Davidson	C. A. Julian
Duplin	J. M. Williams
Durham	W. W. Olive
	B. W. Fassett
Forsyth	E. A. Lockett
Gaston	D. A. Garrison
	T. C. Quickel
Guilford	D. A. Stanton
	W. M. Jones
	Charles W. Banner
Harnett	J. W. Halford
	B. J. Holt
Haywood	J. Howell Way
Henderson-Polk	Guy E. Dixon
Hoke	L. B. McBrayer
Iredell-Alexander	T. E. Anderson
Johnston	J. C. Grady
Lenoir	J. M. Parrott
Lincoln	C. D. Thompson
Mecklenburg	B. J. Witherspoon
	J. E. S. Davidson
	R. Z. Linney
	A. J. Crowell
Moore	M. E. Street
New Hanover	J. G. Murphy
Onslow	Cyrus Thompson
Pasquotank-Camden-Dare	H. D. Walker
Pitt	D. G. Dixon
Randolph	F. E. Asbury

Richmond	L. T. Coppedge
Robeson	T. C. Johnson
Rowan	R. V. Brawley
Sampson	E. T. Hollingsworth
Stokes	J. L. Hanes
Surry	H. B. Rowe
Union	J. W. Neal
Wake	T. M. Jordan
	J. B. Wright
Washington-Tyrrell	J. L. Spruill
Wayne	O. C. Daniels
Wilson	K. C. Moore

The committee, Dr. M. L. Stevens, Dr. J. F. Highsmith and Dr. J. M. Parrott, appointed by the President at the 1920 meeting to handle the funds of the retiring Board of Medical Examiners, made its report. After considerable discussion, on motion of Dr. C. O'H. Laughinghouse, the report was referred back to the committee for further report in 1922.

The following report was read by the Secretary-Treasurer:

REPORT OF THE SECRETARY-TREASURER

To the House of Delegates of the

Medical Society of the State of North Carolina

As required by law and custom, we beg to submit our annual report, as follows:

MEMBERSHIP

We are pleased to report that our membership for 1920 was 1,497, an increase of 410 over 1918, and an increase of 226 over 1917, which was the previous high record. Of this number, exactly 100 are Honorary Fellows and we carry the names of 27 Honorary Fellows on our roster who are deceased. This leaves us 1,397 members for 1920 who paid dues. We should certainly have at least 1,800 members out of the 2,200 physicians, black and white, in our State.

The following efforts have been made to secure these:

(a)—We use every effort known to us to get every County Society to make a report and send in dues for every legal practitioner in the county.

(b)—Failing in this, the secretary, if known to us, which is not the case in a few societies, is advised that certain doctors in his county

have not paid dues. The by-laws place a responsibility upon County Societies to do all in their power to accomplish the foregoing results as is seen in Section 10, Chapter 14, of the By-laws, which reads as follows:

> "Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county."

(c)—We have prepared a card index showing the name of every eligible physician in each and every county, as nearly correct as possible. As the dues are paid the card of each doctor is transferred into the good standing file, and we write a letter to each doctor in the delinquent file asking him to send us his dues to the State Society.

Shortly before transactions go to press we get out another letter making a last call. If this plan is followed up, I believe we will in time reach the 1,800 mark.

(d)—As evidence that this work is having a good effect and is bringing desired results in part, we call your attention to the fact that at this writing, April 20, we have in good standing 1,244 members and we hope that at least 250 to 350 more will be added before the transactions go to print. While the largest membership of any year of the Society, prior to 1919 was 1,271, half of these or more were collected for at the Annual Meeting of the Society or after.

STATUS OF COUNTY SOCIETIES

Several of the large societies carry a 100% membership every year, and more of the smaller ones do the same thing, 100% membership meaning every eligible physician in the county a member. But at that, at least 75% fall below this much desired standing. About the same percentage hold regular, interesting, well attended meetings, while perhaps 35% more hold meetings at irregular times with poor attendance and indifferent interest, and the remaining 40% hold meetings seldom, if ever.

The county society is in reality the basis of all medical organization in the county, State, and nation. And it is surpassingly strange that such a large number of our physicians care so little about it, that they will not keep up their local organization. Labor is very much more interested in itself, and because of said interest, wields a very much

greater influence in the counsels of county, State and nation than do we. The people need our organized influence today, as they have never needed it before.

The following societies are not in good standing today and hence are not entitled to representation or office in this Society:—Allegheny, Ashe, Caswell, Johnston, Onslow, Rockingham, Rutherford, Stokes.

DISTRICT SOCIETIES

These have perhaps been more active than any other year. These give opportunity to the Councilors to show their fettle and many of them show their worth. Particular credit should be given to Councilor, Dr. E. B. Glenn, of the 10th District, for bringing about a reorganization and rejuvination of his District during the last year, which had been moribund for quite many years. The organization in the 10th gives promise of permanency and valuable work. Many of the other Districts have been holding regular annual or semi-annual meetings for many years, some of them doing credit to themselves and their profession, by arranging scientific programs, clinics, etc., that make it well worth while for any physician to attend.

CORRESPONDENCE

The correspondence of the office in detail follows:

Personal letters written	1,950
Multigraph letters and enclosures	10,075
Total	12,025

The personal letters covered correspondence with the membership as mentioned in another paragraph, correspondence with members who would become Honorary Fellows but for lapse in payment of dues covering one to several years, and these have mostly sent checks and their names have been placed on the roster of Honorary Fellows; correspondence with members who would in the next few years become Honorary Fellows, but for lapse in paying dues for one or more years; these have mostly sent checks to cover lapses, and will in due time become Honorary Fellows; correspondence with the officers of our Society, arranging program, with officers of other State and National Medical Societies, and frequently with non medical State and national philanthropic societies, etc., etc. The multigraph letters and enclosures have for the large part been sent out without expense to the society.

While the correspondence seems large, and it is, yet, I have felt each year that there was much other correspondence that would have been of material help to the society and its members, but we desired to economize in every way possible and hoped that by this time we could have had sufficient money in the treasury to pay our expenses until the beginning of the next fiscal year, and would have done so easily, had not the cost of printing gone skyward.

We trust we may be pardoned for saying here that if the officers of the component societies and other members would answer letters promptly, (most of them do, many of them do not), much saving could be had in postage and telegrams. As an example, in 1919 we undertook to get a roster of our brethren who had died in the service of our country. We first wrote to the War Department, but the information was not available at the time from that source; we then wrote the secretaries of the county societies and in ten days we had the information from 50 counties. We sent out another letter to the 50 counties from whom we had received no reply and in ten days we heard from 25 of these. We sent out a third letter to the remaining 25 and waited another ten days and got in a reply from 10 counties, leaving 15. We wired these 15 once and then again and finally got replies from 12 of them and had to get the information from the clerk of the court in the three counties remaining. And in the meantime it had taken nearly two months time, to say nothing of the unnecessary labor and expense. May we express the hope that our successor, whom you will elect at this meeting, will receive prompt replies to his letters, and thus save him much labor and the society much money.

FINANCES

When we took charge of the office for Dr. Hays immediately after the 1918 session, we found not one cent in the treasury, and the Transactions for the current year to be printed. This was no fault of Dr. Hays, because the dues had been only $2.00 per year and the cost of everything rising, and, too, in 1917 the volume of Transactions was unusually large on account of the splendid contribution by Dr. John Wesley Long on the "Early History of our Society," with many photographs of officers and other leading physicians of those times. also a splendid contribution by Dr. J. T. Burrus on "The Hospitals in North Carolina," with many photographs; and it would have been a heinous crime against our profession not to have printed these. The cost of printing, reporters, etc., has continued to climb until last year the bid for printing the Transactions amounted to $5,250.00 by

two firms. Other firms would only do the work on a cost plus basis, while yet other firms refused to do the work at all. This amount was $1,000.00 more than the total dues paid by the members of this Society in any one year. We finally secured a bid from Hackney & Moale Co., Asheville, for $2,561.78, which was accepted by wire. They promised to get out the volume in 60 days after receipt of copy, but it seems that they were not long in finding out that they were in for a loss on the job of five hundred to a thousand dollars, as they aver, and evidently put it on as an "odd job" and refused to be hurried. We finally requested our President of last year and others of the local profession in Asheville to visit the company and see if they could not prevail upon them to finish the job. We finally received them and mailed them out to the members, as you know. There are quite a number of flagrant errors and omissions, for which we crave your indulgence, and we trust that the saving of $2,750.00 will be sufficient balm to sooth our irritation over the same.

The following is a suggested budget for the current year:

Postage, Express, Telegraph	$ 350.00	
Printing Stationery	200.00	
Printing Transactions, (bid)	3,800.00	
Printing Program	100.00	
Reporting Meeting	300.00	
Salary of Secretary-Treasurer	600.00	
Incidentals	100.00	
		$5,450.00
Receipts from Dues, 1,400 Members		4,200.00
Annual Deficit		$1,250.00

It is perfectly apparent that we cannot go on with an annual deficit of that amount for very long.

At present we have on hand $2,362.81, with no outstanding indebtedness, and we are hoping to collect enough dues to make it reach $3,000.00. Reporting this meeting is estimated to cost $300, leaving us $2,700.00 to pay for Transactions, which item is at present placed at $3,800.00 (bid) leaving a deficit of $1,100, which can only be paid out of next year's dues, unless some arrangements are made by this House of Delegates at this Session to take care of it. There are other items that will be necessary, in fact, everything suggested in the budget except meeting program.

However, a cash balance of $2,362.81 looks better than nothing, you will all admit. It is suggested that the Finance Committee give this

matter careful consideration and make recommendation to this body, so that such action as may be deemed wise may be taken at this Session.

A detailed report of the financial transactions of the office for the year are submitted hereto attached, together with a certificate from the Page Trust Co., Aberdeen, showing balance on hand.

This is to certify that our books show a balance of $2,365.81 to the credit of account of the Medical Society of the State of North Carolina.

PAGE TRUST CO.,
E. S. Adams.

FINANCIAL STATEMENT

Receipts

Balance April 16, 1920, as per statement in Transactions, page 292	$1,565.92
Interest on $1,500, 4/28/20 to 7/22/20 @ 4%	13.97
Dr. J. B. Sidbury, for cut appearing page 166	6.39
Dr. J. T. Burrus, for cuts appearing page 108	79.91
Dues collected	4,708.00
	$6,374.19

Disbursements

Check 57	Mrs. S. W. Summers, Reporter	$ 67.26
" 58	Dr. F. J. Pate, Refund Dues	3.00
" 59	Dr. Chas. H. Pugh, Refund Dues	3.00
" 60	Dr. W. A. Rogers, Refund Dues	3.00
" 61	Mrs. S. W. Summers, Exp. Rep.	58.15
" 62	A. W. Snow, Exp. Charlotte Meet.	31.03
" 63	Void	
" 64	Miss Mary Robinson, Reporting	58.43
" 65	Commercial Ptg. Co., Program, 1920	102.32
" 66	W. U. T. Co., April Account	17.43
" 67	Dr. W. A. Mouroe, Refund Dues	3.00
" 68	Dr. K. P. B. Bonner, Expense Councilors' Meeting	17.14
" 69	Miss Mary Robinson, Reporting	44.48
" 70	Dr. B. F. Halsey, Expense Councilors' Meeting	17.00
" 71	Commercial Ptg. Co., Stationery for the President	13.51
" 72	J. Bryan Grimes, Copy Public Law Relative to Nursing	2.90
" 73	Miss Rae Kennedy, Reporting	10.50
" 74	Hackney & Moale, Transactions	750.00
" 75	Dr. W. P. Whittington, Exp. Guest	2.00
" 76	Commercial Ptg. Co., Stationery Pres.	6.70
" 77	W. U. T. Co., July Acct.	2.21
" 78	Commercial Ptg. Co., Stationery Sec.-Treas.	57.75
" 79	W. U. T. Co., Aug. Acct.	.88
" 80	Hackney & Moale Co., Engraving Cuts	109.28
" 81	Void	

Check 82	Postmaster, Stamps	36.00	
" 83	L. B. McBrayer, Sal. Sec.-Treas.	600.00	
" 84	Hackney & Moale, Transactions	750.00	
" 85	Dr. W. T. Griggs, Refund Dues	3.00	
" 86	American Ry. Exp. Co.	78.65	
" 87	Postmaster, Stamps	185.26	
" 88	Hackney & Moale, Transactions	952.50	
" 89	A. W. Snow, Clerical Work	25.00	
			$4,011.38
	Balance April 21, 1921		$2,362.81
	Check 85, outstanding, Dr. W. T. Griggs		3.00
	Balance Page Trust Co., 4/21/21		$2,365.81

DISTRIBUTION OF EXPENSES

Dues Refunded, paid twice	$ 15.00	
Postage, Express, Telegraph	320.43	
Printing, Stationery	180.28	
Reporting Meeting	238.82	
Printing Transactions	2,561.78	
Expense Meeting Board of Councilors	34.14	
Salary Secretary-Treasurer	600.00	
Miscellaneous	60.93	
		$4,011.38

In turning this office back to this Society for my friend, Dr. Benj. K. Hays, who continues at this time with the United States Public Health Service, and will not for the present return to the State, may I assure you of the pleasure it has been to me to try as best I could to serve this Society in his stead, and may I also say that the better one knows the physicians of North Carolina, the more he loves them and the greater respect and honor he has for them, and this added opportunity of learning to know them better has been a personal pleasure to me. May I also express the hope that the Secretary-Treasurer elected to succeed Dr. Hays may have the same cordial relations and co-operation with the component societies and the membership as has been accorded us.

Respectfully submitted,

BENJ. K. HAYS, *Sec.-Treas.*

By L. B. MCBRAYER,
Acting Sec.-Treas.

We have examined and approve this report.

ERNEST S. BULLUCK
J. W. LONG
E. B. GLENN

Dr. A. J. Crowell made a motion that the report of the Secretary-Treasurer be adopted. Motion seconded.

The report was adopted.

Dr. H. A. Royster, Chairman of the Committee on Public Policy and Legislature, presented the following report:

TO THE HOUSE OF DELEGATES

The activities of the Committee on Public Policy and Legislation during the past year were confined largely to helping to obtain certain changes in the medical practice laws. Our personnel was merged into a special legislative committee of larger size and scope, appointed as the outcome of a joint conference with the Board of Medical Examiners and prominent Fellows of the State Medical Society held in Raleigh during last November and December. The results of the labors of this special committee are perhaps already known to you or will be reported in due time. We desire to congratulate this Committee and the Society upon what was accomplished.

Respectfully submitted,

H. A. Royster
L. B. McBrayer
Cyrus Thompson

April 26, 1921

On motion of Dr. J. M. Parrott, the report was adopted and a vote of thanks extended to Drs. Kent, Bonner and their allies for their efforts before the Legislature.

Dr. J. H. Way submitted the following report by the Committee on Public Health Administration:

Mr. President and Gentlemen:

We have the honor to submit the report of a special committee recommended in the President's Address of the sixty-seventh annual meeting of the Medical Society of North Carolina and approved and endorsed by the special committee on the President's Address. (See pages 15 and 295, respectively, of the Transactions of the Society for 1920.)

The powers conferred upon the Committee according to the President's recommendations are: (1) that it may attach to itself such persons as by their special experience or training may assist it in its

work; (2) that the Committee should act in conjunction with certain national health agencies, to-wit, the American Public Health Association, the Conference of State and Provincial Boards of Health, the Southern Medical Association, and, presumably, the American Medical Association, as through the House of Delegates of the last named Association the Committee would have the only official channel of contact with the other named national agencies.

The duties of the Committee from the President's recommendations would seem to be to outline a plan of health administration, and, judging from the national contacts suggested for the Committee, it is presumed that the President had in mind a plan of health administration both national and State in scope.

With respect to existing national health administration, your Committee finds that a joint committee representing the American Medical Association, the Conference of State and Provincial Boards of Health, and the American Public Health Association has been at work now two years and has given a great deal of thought and study to various proposals dealing with the question of national health administration. The joint committee, on finding that five of the ten Cabinet Departments were engaged in various phases of public health administration now being conducted in thirty-three bureaus of the five Departments, have recognized the practical impossibility of unofficial investigators obtaining the necessary information from the official agents of the Government—the thirty-three bureaus of the five Cabinet Departments—on which to formulate a well-co-ordinated plan of national health administration, recommended the enactment by Congress of a joint resolution creating a joint committee of Senators and Congressmen for the purpose of making a study of existing federal health agencies and submitting such recommendations in the form of a bill to Congress for the co-ordination and improvement of national public health work as the aforementioned study might suggest. The joint resolution was introduced in December, 1919, has passed the Senate and is now pending in the House and will probably pass this spring. Your Committee believes that the joint committee representing the national associations mentioned is pursuing this matter along the right line and that nothing further can be done before the adoption of the joint resolution referred to, unless President Harding recommends some special measure or measures for re-organizing different Departments of the Federal Government. Your Committee takes this view of the situation because the organization of a national health department is a matter of such importance and one that involves so many constitutional principles of government, and such details of organiza-

tion, that it cannot be passed upon hastily but in its very nature requires thorough study by those qualified to secure the information that is needed and those who have the administrative experience and training as to be able to formulate a national commission or department or sub-department of public health.

With respect to existing State public health organizations, your Committee believes that the present State commission basis offers a better means of developing efficient State health administration than does the other plan followed by some States, to-wit, the appointment of a single commissioner of health by the governor. The commission or board of health basis, especially where the members of the board of health retire and are succeeded at different times, thereby making for stability of policy, tends to eliminate partisan politics from the control or manipulation of the public health policies of the State, whereas the appointment of a commissioner of health by the governor makes the office a political one and liable to all the disadvantages of political uncertainty and the influence of partisan politics.

Your Committee approves, further, the general plan of administration and organization so far pursued by the North Carolina State commission or board of health, in selecting its chief executive officer, and through the said officer establishing bureaus or divisions within the executive staff, as appropriations become available to deal with State health problems which fall within one of the four following classifications:

1. Public health problems that are inter-county or State-wide in nature and are administratively impossible of county or local control, to-wit, the control of public water supplies, the administration of vital statistics laws, general supervision and control of epidemic diseases.

2. Public health problems that for reasons of economy should not be handled by the county, but by the State, to-wit, the majority of the laboratory work relating to public health, (including the supply and distribution of biological products) and the major part of the educational work necessary for the proper development of public health.

3. Public health problems relating to special diseases that are such big factors in the State's death rate, for which the State and not the counties must be responsible, as to make it inexpedient for the State to maintain its responsibility for the death rate on the one hand and leave entirely to the county, which may or may not assume control of the larger disease problems, such factors in the general death rate as venereal diseases, tuberculosis, infant and maternal hygiene.

4. Public health problems that in their nature require co-operative understandings and procedure between the State and the counties, to-wit, the problems of rural sanitation.

Your Committee understands that it is the present purpose of our State Board of Health to develop within the next year or eighteen months, through the assistance of experts loaned by the International Health Board and the United States Public Health Service, extensive and thoroughly digestive plans for dealing with malaria in Eastern North Carolina, and the Committee heartily endorses this purpose of the Board.

Your Committee further understands that the State Board of Health does not contemplate making changes in its plans for operating upon public school children whose progress is retarded, and who retard their classmates on account of diseased tonsils and adenoids. The plan as at present pursued was developed in co-operation with a committee representing the Eye, Ear, Nose and Throat Section of this Society and was re-examined and approved by the said Section at the meeting of the Society last year. The present plan, briefly, is this: Nurses under the Bureau of Medical Inspection of Schools are sent into the counties to visit the children, the reports upon whom by teachers indicate diseased tonsils and adenoids, and on finding the children so diseased advise their parents as to the importance of an operation and offer the parents of the children an operation in what has been termed, and is generally well known, a tonsil and adenoid club clinic, the parent agreeing to pay $12.50, which amount is used to pay the cost of the clinic. The surgeon employed to do the operations is the one usually preferred by the majority of the parents and who is available for the work. The surgeon is paid $100 a day and all expenses. Considerable criticism has been offered in regard to this plan, most of it relating to two features: (1) The choice between eye, ear, nose and throat surgeons, taking one man and not taking the other or, in many towns, others; (2) assessing a definite sum against the parents and thereby indirectly tending to establish a rate which, although admitted to be a rate for wholesale work under special conditions, tends, it is alleged, to establish or fix a rate for which the specialist cannot be expected to do operations as they come up in private office practice. To meet these two criticisms, it has been proposed that the Board employ a full time operator, thereby avoiding discrimination in the selection of surgeons, and the charging of a fee for operations, the operations being gratis.

Such an arrangement would work to the disadvantage of both public and local profession in that the State would fail to introduce the

population needing such service to the local profession qualified to supply the need not only temporarily, but permanently.

Your Committee recommends the continuation by the State Board of Health of its present successful plan for dealing with school children suffering from diseased tonsils and adenoids.

Respectfully submitted,

J. Howell Way
James Parrott
L. A. Crowell

Committee.

On motion the report was approved.

Dr. C. O'H. Laughinghouse made motion that the report be presented to the conjoint session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health. Adopted.

Dr. Parrott made a motion that the lapse in payment of dues for Dr. W. F. Hargrove be considered paid and that this lapse shall not prevent his becoming an Honorary Fellow after thirty years from the time of joining.

After discussion, the motion was withdrawn.

Dr. Hargrove subsequently paid dues for the year in question and is now carried on the Treasurer's book as a member in good standing from the time of joining in 1900.

On motion of Dr. C. O'H. Laughinghouse, the Secretary-Treasurer was instructed to send a message of condolence and hope to Dr. Fletcher. The following message was sent:

Pinehurst, N. C., April 26, 1921.

Dr. M. H. Fletcher,
Asheville, N. C.

The Medical Society of the State of North Carolina misses you greatly in its deliberations, sympathizes with you in your afflictions and prays for your speedy return to health.

L. B. McBrayer,
Secretary-Treasurer.

The following Nominating Committee was appointed:

First District	Joseph L. Spruill
Second District	J. M. Parrott
Third District	J. G. Murphy
Fourth District	K. C. Moore

Fifth District.....W. P. Holt
Sixth District.....W. DeB. MacNider
Seventh District.....J. E. S. Davidson
Eighth District.....D. A. Stanton
Ninth District.....C. A. Julian
Tenth District.....J. H. Way

Motion by Dr. J. E. S. Davidson that each local county organization pay its pro rata part of printing the Transactions.

Motion by Dr. Cyrus Thompson that the motion of Dr. Davidson lay on the table.

Motion carried.

The next business brought before the House of Delegates was the standardization of fee to be charged for issuing Certificate of Health to be used in connection with securing marriage license.

The matter was discussed by Drs. Thompson, Crowell, Davidson, Murphy and others.

No definite action taken.

Motion by Dr. D. A. Garrison that the Medical Society of the State of North Carolina approve the principles of the law passed by the 1921 General Assembly providing for a Certificate of Health from a licensed physician before marriage license could be secured.

Motion carried.

HOUSE OF DELEGATES

Wednesday, April 27, 9:30 P. M.

The meeting was called to order by the President, Dr. Anderson.

Dr. Seale Harris, Secretary of the Southern Medical Association, sent greetings to the Medical Society of the State of North Carolina and best wishes for a great meeting, which was replied to by the Secretary.

The report of the Committee to confer with the North Carolina Teachers' Assembly was read by the Chairman, Dr. Cooper.

April 26, 1921.

Dr. Thomas E. Anderson, President,
Medical Society of the State of North Carolina.
Dear Sir:

Your Committee appointed to confer with the North Carolina Teachers' Assembly, with a view of co-operating with this Assembly on suggestions and recommendations for a Hygiene and Health Course in the Public Schools, beg leave to report as follows:

1. Upon the request of your Committee, the North Carolina Teachers' Assembly, at the regular meeting in November, appointed a Committee to co-operate and work with your Committee from the Medical Society.

The members of this Teachers' Committee are: Dr. H. Henry Highsmith, State Inspector of High Schools, Department of Education, Raleigh; Miss Virginia Jenkins, Principal, West Ward School, Salisbury; Mr. Joe S. Wray, Superintendent of City Schools, Gastonia.

2. Under a recent law, passed by the Legislature of 1921, the State Department of Education contemplates the preparation of new courses of study for the public schools of North Carolina. To this end, a commission of teachers will soon be appointed.

3. In view of this fact, your Committee asks that it be continued for the purposes for which appointed, and authorized to co-operate in whatever way advisable (1) with the Committee from the Teachers' Assembly and (2) with the State Department of Education and the Commission on Courses of Study in formulating the course on Hygiene, Physiology and Health in the Public Schools of the State.

Respectfully submitted,

G. M. Cooper, *Chairman*
R. L. Carlton
W. S. Rankin
P. P. McCain

Committee

Report approved.

The report of the Committee on Nominations was read by the Secretary, as follows:

April 27, 1921.

Your Committee on Nominations met on the evening of April 26th with each District represented, and organized by electing Dr. C. A. Julian, Thomasville, Chairman, and Dr. J. Howell Way, of Waynesville, Secretary.

As a result of their deliberation, the following nominations for officers of the Society are submitted:

President.....Dr. Hubert A. Royster, Raleigh
First Vice-President.....Dr. William T. Parrott, Kinston
Second Vice-President.....Dr. B. C. Nalle, Charlotte
Third Vice-President.....Dr. J. R. McCracken, Waynesville
Secretary-Treasurer.....Dr. L. B. McBrayer, Sanatorium

Committee on Scientific Work

Dr. E. J. Wood.....Wilmington
Dr. Richard N. Duffy.....Newbern
Dr. C. A. Shore.....Raleigh

PUBLICATION COMMITTEE

Dr. P. P. McCain.....Sanatorium
Dr. C. A. Julian.....Thomasville
Dr. W. L. Dunn.....Asheville

COMMITTEE ON OBITUARIES

Dr. J. T. J. Battle.....Elm City
Dr. Arch. Cheatham.....Durham
Dr. H. H. Briggs.....Asheville

PUBLIC POLICY AND LEGISLATION

Dr. John B. Wright.....Raleigh
Dr. J. M. Parrott.....Kinston
Dr. Cyrus Thompson.....Jacksonville

FINANCE

Dr. J. W. Long.....Greensboro
Dr. E. S. Bulluck.....Wilmington
Dr. E. B. Glenn.....Asheville

DELEGATES TO AMERICAN MEDICAL ASSOCIATION

Dr. John Q. Myers.....Charlotte
Dr. J. F. Highsmith (elected for 2 yrs.).....Fayetteville

DELEGATES TO THE VIRGINIA MEDICAL SOCIETY

Dr. W. C. Willis.....Rocky Mount
Dr. C. V. Reynolds.....Asheville
Dr. J. B. Bullitt.....Chapel Hill
Dr. G. Grady Dixon.....Ayden

DELEGATES TO SOUTH CAROLINA MEDICAL ASSOCIATION

Dr. W. F. Hargrove.....Kinston
Dr. A. S. Root.....Raleigh
Dr. D. A. Garrison.....Gastonia
Dr. R. V. Brawley.....Salisbury
Dr. John W. MacConnell.....Davidson

Raleigh and Winston each receiving an equal number of votes from the Committee, are submitted without prejudice for your selection.

Signed for the Committee,

DR. C. A. JULIAN, *Chairman.*
DR. J. HOWELL WAY, *Secretary.*

On motion, the report of the nominating committee was adopted.

Resolved: That the by-laws be changed and that the nominations of all officers shall be made upon the floor in open session, and that the Committee on Nominations be abolished; this resolution to lie upon the table for one year and come up at the 1922 meeting of this Society.

(Signed) J. E. S. Davidson.

This motion was seconded by Dr. J. L. Haynes, of Pine Hall, and according to the rule, will lie on the table until next session.

Dr. J. S. Murphy, Wilmington: I was elected in open meeting of the New Hanover Society. I was appointed as a member of the Nominating Committee, and I want to go on record as resenting the insinuation that I am a party to wire-pulling or politics or anything except a fair chance to every member of the North Carolina State Society. I wish to go on record as personally resenting the insinuation that I am a party to anything that is not straight and open and aboveboard.

A motion to accept the report of the Committee on Nominations was offered and seconded, and the report was adopted.

Dr. K. C. Moore, Wilson: The Nominating Committee did not select any place for our next meeting, but recommended two places, on which there was a tie vote, Raleigh and Winston-Salem. If it is in order, I would like to suggest another place of meeting—Pinehurst.

Dr. Cyrus Thompson moved that the members present vote by ballot for Raleigh, Winston-Salem, or Pinehurst, and this motion was seconded and carried. The President appointed Dr. Hanes and Dr. Moore as tellers. As the result of the balloting, Winston-Salem was chosen as the place of the 1922 meeting.

The name of Dr. J. W. MacConnell, of Davidson, was offered as a delegate to the meeting of the South Carolina Medical Society at Rock Hill, and Dr. MacConnell was duly elected.

Upon motion by Dr. Thompson, the House of Delegates then adjourned.

MEETING OF SECRETARIES OF COUNTY SOCIETIES

DR. H. D. WALKER, ELIZABETH CITY, *Presiding*

There were present the following:

Bertie County	Dr. F. H. Garris
Chatham County	Dr. W. Clyde Thomas
Cherokee County	Dr. N. B. Adams
Davie County	Dr. A. B. Byerly
Harnett County	Dr. Wm. P. Holt
Hoke County	Dr. L. B. McBrayer
Lee County	Dr. Lynn McIver
Moore County	Dr. A. McNiel Blair
Randolph County	Dr. W. J. Moore
Robeson County	Dr. E. R. Hardin
Stokes County	Dr. R. G. Tuttle
Surry County	Dr. Moir S. Martin

DR. L. B. MCBRAYER: The Secretaries of the local county societies are the most important officers in the medical organization, certainly in the State and in the Nation, because the county society is the unit, and a man cannot be a member of the State Society unless he is a member of his local society, neither can he be a member of the American Medical Association unless he is a member of both. The Secretary is the man who keeps a fellow paid up and in good standing. I thought that if we could all get together and tell each other how we do it, it would help us like everything.

DR. K. P. B. BONNER: Mr. President and members of the county societies: The title of my paper differs just a little from that as put down on the program. I think Dr. McBrayer had a motive in making a difference, but as long as we are all together I will read the title of my paper.

THE IMPORTANCE OF THE ORGANIZATION OF THE MEDICAL PROFESSION AS IT RELATES TO SECURING LEGISLATION IN THE GENERAL ASSEMBLY

K. P. B. BONNER, M. D., MOREHEAD CITY

In discussing a subject of this nature, it is impossible for the mind of the average physician to grasp a true conception of the vital importance of team-work in securing medical legislation without reviewing past medical legislative history, the recent campaign, and indicated future activities. In such a paper, the forces that have made and will

have to make these things possible, will be cited. The real significance of different stages in the development of medical laws will be shown. The subject will be handled under three general headings: 1. The period of evolution of medical practice laws and the policy of handling such legislation. 2. The recent medical legislative campaign and the means used to enact such laws. 3. Indicated future legislation and the suggested method of handling it. The conclusion will consist of a general summary of the whole situation and a discussion of certain aspects of the question not touched upon in the three general headings.

1858-1921

THE EVOLUTION OF MEDICAL PRACTICE LAWS AND POLICY OF HANDLING PAST LEGISLATION

This section would be lacking if it did review in a brief manner the legislative enactments covering this period of sixty-three years. The original act incorporating the Medical Society of the State of North Carolina and creating the Board of Medical Examiners of the State of North Carolina was passed and designated as Chapter Number 258 of the Private Laws by the General Assembly of 1858-59. You will note the assignment to the private laws of the State. This very action was a fore-runner of things to come. The Legislature evidently considered this law to be of special benefit to the profession and as having no real value to the public. In substantiation of this estimate of the idea of the General Assembly in the passage of the law, the law required the licensing of all persons who in the future desired to engage in the practice of medicine or surgery, but entirely vitiated the act by providing that no person would be deemed guilty of a misdemeanor who did so. The act provided, also, for the granting of temporary licenses to applicants in the interval between the meetings of the Board. The only benefit enjoyed by the licentiate over the unlicensed was the right to sue for service rendered. In the 1885 session of the General Assembly, it was made a misdemeanor to practice medicine or surgery without a license, but provision was made that the law should not apply to physicians holding a diploma from a medical college bearing date prior to January 1st, 1880. This was virtually a repudiation of the section of the original law requiring license of all future practitioners. In 1889, the Legislature passed an act requiring all physicians to register with the Clerk of Court in the county in which he resided. The time limit set for this was on or before Jan. 1st, 1890. The law at the same time provided for

the registration of all physicians who could establish by affidavit the fact that they had practiced prior to 1885. We have here another illustration of backtracking on the part of the Legislature. In spite of the liberal spirit of our law-makers, many men let their privilege go by default and the Board of Examiners was annoyed for years by applications for special permits to register. It was not until fifteen years after the law went into operation that the issuing of special permits was discontinued by resolution of the Board. The Legislature of 1899 passed a law requiring that an applicant for license to practice medicine should present a diploma from a medical college requiring at least a three years course. Heretofore the Board was compelled to examine any person presenting himself, whether he had ever seen the inside of a college or not. In 1907, the Board was permitted to endorse the credentials of another State and license without examination those holding such credentials. In 1909, the General Assembly enacted the limited license law. This was very largely necessary as a result of the ineffectiveness of the Medical Practice Act and for the purpose of forestalling the possibility of special licensing legislation for certain favored individuals who possessed considerably more political influence than professional attainments. In 1915, the meetings of the Board of Medical Examiners were separated from the State Society and the place of meeting fixed in the city of Raleigh; the Board was permitted to examine students upon the completion of the first two years in medicine upon such branches as they had completed; all prosecutions for violations of the Medical Practice Act were specifically placed in the hands of the Board of Medical Examiners and in turn through the office of the Attorney General of the State; finally a man presenting himself for examination was required to possess an education equivalent to the completion of the standard high school course and in addition thereto be a graduate of a medical school in good standing and of high grade giving at least a four years course in medicine as a minimum.

The accomplishments of the first sixty-three years of medical legislation may be briefly summed up into seven points:

1. The creation of a Board of Medical Examiners.

2. The requirement of a license before engaging in the practice of medicine or surgery.

3. The requirement of registration of all practicing physicians in the State.

4. The requirement of a diploma from a medical college of all applicants for license.

5. Permitting the Board of Medical Examiners to issue a certificate without examination to physicians licensed in other States.

6. Vesting the power of all prosecutions of violations of the Medical Practice Act in the hands of the Board through the office of the Attorney General.

7. Requiring a preliminary high school education plus a diploma from a medical college in good standing requiring at least a four years course before granting a diploma.

The method of handling legislation during this period consisted in the appointment of a Committee on Public Policy and Legislation by the State Society. This committee, aided by the legislative committee of the Board of Medical Examiners, drafted such legislation as was plainly and urgently needed, went to Raleigh during the session of the General Assembly and used their best efforts in the passage of the bill—alone and unaided in their efforts. The rank and file of the profession, after the appointment of this committee, went back to their respective homes well content and comforted with a sense of duty well done, and satisfied to let the matter rest at that point so far as the individual physician was concerned. It did not dawn on their comprehension that they had delegated a duty to a committee that was humanly impossible for it to perform without assistance from the profession. No reflection is intended upon the ability of a single man composing the past committees. The task was simply too large for any committee unaided, regardless of the personality or influence of the men composing it. On the other hand, all honor to these men for their wonderful accomplishments under the circumstances. When the report of the committee was made at the next meeting of the State Society as to the accomplishments in the General Assembly, these attainments were usually received in a matter-of-course attitude, with no comments at all except possibly criticisms from some as to the limited accomplishments of the committee. Only those who have served on these committees can tell you of the difficulty of handling legislation under such circumstances. Only those can tell you of the heart-breaking disappointments met during this period. Only those can tell you of the obstacles encountered in the person of obstinate influential legislators, who questioned the motives actuating the proponents of these measures. Only those can tell you of the many partial and utter failures of medical legislative programs. These men deserve the undying gratitude of the entire medical profession for fighting single-handed the battle of the com-

mon weal and emerging victorious from the fray in the majority of instances. Their position was heroic at the very least.

1921

RECENT MEDICAL PRACTICE LAWS AND THE MEANS USED TO ENACT SUCH LAWS

The 1921 act has been covered in detail in the report of the Board of Medical Examiners to the State Medical Society. For that reason the accomplishments will only be mentioned by means of referring to the points gained in the legislation. This will be covered in nine points:

1. The repeal of the temporary licensing law.
2. The clarifying of the method of keeping the records.
3. The consolidation of the sections relating to the compensation of the members of the Board of Examiners and the fees required of applicants.
4. Making specific and considerably enlarging the causes for which licenses may be rescinded.
5. The elimination of the "fee or reward" clause from the penalty section.
6. The elimination of the provision by which men licensed in other States were admitted to our examinations, whether a graduate of a college of Class "A" rating or not—merely because they were licensed. Our standard is now uniform to all applicants alike.
7. The insertion of a clear definition of the practice of medicine and surgery in the penalty section of the Medical Practice Act.
8. This definition will keep various medical sects in their own domain. Once they are confined in these limits, their days are numbered. They have thrived in the past on continual encroachment. In some States, they have been able to almost perpetuate their existence by engrafting themselves upon the medical profession through the avenue of combination examining boards. If there is any truth in the argument that the life of medical sectarianism is limited and will run its course, there is not a plausible argument in favor of prolonging this self-limited life and lending an air of respectibility to it by allowing it to attach itself to scientific medicine in the combination board.

9. The last and greatest achievement was that of securing a unanimously unfavorable report upon the bill of the osteopaths that would have granted them the unlimited right to practice medicine and surgery without first qualifying themselves. This victory followed a set hearing at which both sides were given the full opportunity to present its case. The victory was clear cut, considered from any angle, and is in marked contrast to the result obtained in the battle staged between the medical profession and the osteopaths in the session of 1907. At that time the osteopaths were the victors; the medical profession went down in inglorious defeat. At that time the profession was content to stay at home and expect a committee to overcome overwhelming odds.

Let us now consider the forces employed to make the 1921 program possible. The program was mapped out by a combination of three committees consisting of ten members of the profession. The proposed changes were then communicated to each and every county medical society in the State through its Secretary. The importance of getting through the legislative program was stressed in the communication and the membership of each society was urged to exert its influence, individually and collectively, with its representatives in each branch of the General Assembly. A central point was established and offered as a clearing-house through which information as to the progress of the campaign might be cleared. Each society was given the clear understanding that the responsibility of the attitude of their individual members of the Legislature rested with it. It is interesting to note that the entire program went through with remarkable celerity, in spite of the fact that the program mapped out was the most elaborate since the original act. In the final windup, concessions were gained that were not deemed possible at the outset of the campaign. An after-study of the situation as a whole furnishes food for reflection to the thinking man. It was easy to judge as to the activity of the county medical society by the attitude of its local representatives in the General Assembly. The unfriendly legislator almost invariably hailed from a county having no organization of its medical men or only a dormant one.

In continuation of this idea of handling the representatives through the county society, the members of the legislative committee did not approach the obstinate legislators personally. Instead, "the folks back home" were notified of this attitude and that their men were not "running true to form." The results of such a plan were amaz-

ing at times. Time after time, these men were openly hostile to our measures, would come to us, after the news had been flashed back to their home folks, and assure us of their support and offer some flimsy excuse or explanation as to why they had misunderstood the intent of the bill. Thus you can readily grasp the importance of exerting the influence of each component society in bringing about legislation. The local society has more influence with its local representatives than any legislative committee could ever hope to have.

1921—?

INDICATED FUTURE LEGISLATION AND THE SUGGESTED METHOD OF HANDLING IT

Indicated future legislation will probably consist principally in blocking encroaching legislation on the part of medical cults and preventing the passage of legislation calculated to give legal sanction to the entrance of new cults for the purpose of preying on the sick and afflicted and capitalizing human suffering. It is barely possible that our penalty section, relating to the punishment of those who choose to engage in the practice of medicine without the formality of qualifying themselves, may have to be strengthened.

It is suggested that all future legislation be handled in the same manner as was the 1921 campaign—through the medium of the county medical society. To do this successfully, it is absolutely essential that each county have a live, active county medical society. If all the practicing physicians in each county are members of their local society, the organization will have the prestige that cannot be had by a society of whom only a part are members. In unity there is exceeding strength, and no legislator will ignore the wishes of the united profession of his county.

SUMMARY

In this section it will be well to take stock of the real accomplishments of the first two eras of medical legislation. What the third holds in store, only the future can reveal.

The first period can be classified as the era of the development of medical licensure and was characterized by the gradual raising of the standard of medical education required of those presenting themselves for a license from the Board of Medical Examiners. On the face of things, it would appear that in our zeal to raise the standard of professional excellence, we had lost sight entirely of the large number of men practicing daily in the State who had never made

even a pretense of securing a license. Not so! This was a point on which the Legislature was particularly unfriendly when the question was raised. There was, comparatively speaking, little difficulty experienced in raising the educational standard, as compared to enacting laws calculated to prevent the illegal practice of medicine and the practice of impostors and incompetents. The Legislature took the philosophical view, that if the physicians cared to impose higher standards of education upon themselves, that it would not hurt the public. On the other hand, it viewed any strengthening of the penalty sections against illegal practice as being of peculiar benefit to the profession by removing competition, losing sight entirely of the public aspect of the question and that the public deserved to be protected against incompetents and impostors.

The second period can easily be classified as the era in which illegal practice was penalized and was made effective both as it relates to medical sectarianism and the practice of the unlicensed. This period is characterized by a mending of the gaps in the fence that made possible the differentiation of the fit and unfit. Gaps that made possible the practice of those unlicensed. It placed in their own domain those medical sects now legally recognized by the State. Prospects now look bright that this situation will continue in the future, if the opinion of the Attorney General may be counted as of value. The recent bill passed, accepted them at their own valuation and restricted them entirely within these limits in the penalty section of our law. In view of the fact that this reference to them is incorporated in the penalty section, the prevention is made all the more effective.

Going back to a further consideration of the practice of the unlicensed. There were three great causes that made such acts possible: 1. The "fee or reward" clause in the old penalty section. 2. The absence of a definition of the practice of medicine and surgery in the same section. 3. Public sentiment in favor of the defendant in a prosecution under the Medical Practice Act. The first two defects have been eliminated in the recent bill. The last defect was cured as far as it was legally possible to remedy, when the prosecution of such cases was placed in the hands of the Board and through the office of the Attorney General. By this act, all prosecutions were made official and added the dignity of the State. The object of this act was to rob these prosecutions of any local color. This manner of handling such cases makes impossible the construction by friendly juries that the prosecution is nothing more than a persecution and actuated by professional jealousy for the purpose of getting rid of dangerous competition.

A discussion of this subject would not be complete that did not take into consideration certain important side-aspects of the successful handling of medical legislation. The psychology of the average legislator's mind is a factor to be taken into account. His first and only thought is to act to the best interest of the public. He is anxious to do the right thing and will be sure to do it if it can be shown to his satisfaction. His is a suspicious mind, however, and any legislation proposed that carries a special benefit or protection to any class of citizenship is likely to meet with his strong opposition, regardless of the fact that the same legislation may confer infinitely more benefit and protection on the public. It will always be necessary for the profession to take the initiative in needed medical legislation; because the lay mind is not trained to discern what is imperative for the common good. It is the duty of the medical profession to think out these problems with an eye single to the public welfare and protection, with no thought as to the benefit that may accrue to it. Law is designed solely for the good and protection of the people. If any peculiar privileges accrue to a certain class, that is a mere detail. It is to be regretted that influential members of past General Assemblies have construed the motives of those seeking medical legislation as being mercenary and this conclusion has been responsible for the defeat of much wise legislation. It is for us to map out future campaigns with the sole idea in view of protecting the public. The public good is our good; the two are inseparable. This underlying motive actuating our efforts, we can look each individual legislator square in the eye and by our very manner impress him that the measure advocated is a blessing to the public, indeed and in truth.

HOW TO GET 100% MEMBERSHIP IN A COUNTY SOCIETY

E. R. Hardin, M. D., Robeson County

Mr. Chairman, I was not asked to prepare any paper on this subject and I am glad I was not because I have only been Secretary of our Society for about three months. I talked with Dr. Martin, our previous Secretary, in regard to this matter, and he gave me a few hints as to how he had gotten a 100% membership in our county. Dr. Martin, from what he told me, acquired this 100% membership by hard work and persistence. He simply kept knocking after these men and some of them it took a long time to get. He would keep sending letters and seeing them personally and telling them just how

many men he lacked having 100% and he had to have their membership to make it.

We have an active county medical society, about as good, I believe, as I have had the opportunity of observing, and we try to put on a pretty interesting program at every meeting, have two or three papers and try to make the meeting as interesting as possible. All the members out of the county seat have been entertained at dinner at most of these meetings. I think all these things help to keep the men interested. Of course, we all know the secretary of any local society is largely responsible for the success of that society for the success depends on the membership and attendance and if the secretary is a live wire and is on the job and keeps right after the members in the average county, I believe he can keep 100% membership and have pretty interesting meetings if he makes it his business to map out the programs and try to put over a good program at every meeting.

HOW TO GET 100% MEMBERSHIP IN A COUNTY SOCIETY

Moir S. Martin, M. D., Surry County

Mr. Chairman, I did not expect to have anything to say on this. I thought possibly I would fall in a discussion after the paper was read.

In Surry County for the past several years we have had quite a fight to make our membership 100%. We have not accomplished this as yet. Every man in Surry County is a member of his county society with one exception. That man we have been unable to reach and we have tried in every manner. We have had considerable trouble in having meetings. To begin with, our constitution says we should meet each month. This we have been unable to do. We have adopted a plan by which we meet quarterly, in March, June, September and December and we meet in a different section of the county each time, Pilot Mountain, Elkin, Dobson, and Mt. Airy. The home members are expected to entertain the society when it meets with them. That is a drawing card for us. The men will cut loose if they are going to get a little recreation. We feel that has been one thing in favor of the membership in Surry County.

HOW TO GET 100% MEMBERSHIP IN A COUNTY SOCIETY

F. H. Garriss, M. D., Bertie County

I came in here this afternoon with the expectation of being entertained and to be told how to give my county society a 100% membership, but not to tell you how same could be done. I am, this afternoon, like the man that had been married long enough to close the honeymoon sugar dish and open the quinine bottle of married life. His wife was taken seriously ill and just before dying, called her husband to her bedside and said that she had one last request to make of him. He answered: "Yes, darling, anything you ask I will certainly do." And reaching out feebly for his hand she said: "I want you to ride to my funeral in the same carriage with my mother." After passing his free hand over his forehead he answered: "Yes, darling, I will do it, but it will take all the pleasure out of the occasion for me!" So, Mr. Chairman, that is what you have done for me this afternoon; you have destroyed my expectations.

The present day as I see it is a day of organization, everything is being organized, from the smallest labor units to the ruling nations of the world. We have simply to revert to the history of the last decade to see the results of organization among the labor and trade factions, and such marked results have been accomplished by them that the master peace makers of the nations have decided upon a union of the powers to insure perpetual peace for the world. Therefore, I see no reason why we as a profession should not better ally ourselves together in one mass so that we may profit from each other, through a closer relationship with each other, in an interchanging of ideas with each other and in protecting ourselves as a mass. The present day is also pregnant with imposters and parasites that not only feast upon profits taken from us, but fill their coffers with blood money taken from the ignorant and suffering public, which we, as a great humane society or profession have pledged ourselves and our State to protect.

So, gentlemen, you see our duty is twofold, namely: to help ourselves and protect our public and with the latter, not only to relieve its suffering when same is within our power, but to protect it from impostors. A clear demonstration of the latter is what Dr. Bonner and his committee did for us during the last General Assembly, with very little help from us as a mass. To accomplish these things we must have as near 100% membership and as well organized State

society as possible and the strength and usefulness of any organization depends upon its units and the units of the State society are the county societies and you brother secretaries, that are here present this afternoon, know how dependent the county societies are upon their secretaries, so upon us gentlemen depends the success of our State medical organization. But how to get this county efficiency, I must confess that I had rather have some one that is older in the cause than I am to tell you. The methods I have used work nicely with some and with others it has failed, we have very little trouble with the young physicians, they are generally present and anxious to attend but the older ones are hard to get interested. I practiced in my county six years before I attended a meeting of a county medical society or was invited to attend same. In other words, there was not a meeting during that time and I cannot tell how long before then that there was a meeting. Why? Our secretary at that time was a man of middle age and a man that did not take any interest in medical societies and did not give a flip whether we had an active society in our county or not. He simply sent in to the State secretary his three dollars membership fee and that of any other physician in the county that happened to give him same without his asking for it. Now, gentlemen, that is an example to you of what an inactive secretary will do for a county society. But since 1918, the younger physicians of the county have reorganized the society and now we have a regular and very active attendance with every young physician in the county an active member and a few of the older ones. And here allow me to say that I am certainly glad to see some older men here this afternoon as secretaries of their societies and as active members and I know they are active or they would not be here.

Physicians are the most forgetful people in the world and especially in regard to county society meetings, they have to be reminded two or three times of every meeting. My method is about the same as that of the gentleman from Surry who has just spoken. I mail a notice of the meeting to each member about two weeks preceeding same and again about one week before. I send them a programme of the meeting and an invitation to every physician in the county not a member. The doubtful members in the county that I am afraid will not attend I call up over the telephone on the day preceeding the meeting. This seems to be lots of trouble, but we feel that if we can once get them interested and taking an active part in the meetings, they will then come without so much persuasion. Physicians are not unusual people; they are constituted like other ordinary men, therefore the nearest way to a doctor's heart is through his stomach, so a meeting with

something to eat between sessions or after they are over with, will be better attended than one without. In my section of the State, barbecues are very popular and when we want to have a large attendance at any kind of meeting, we say barbecue. I have often heard one physician in my county say that he did not care to attend a medical society because there would not be any one there that could tell him any thing that he did not already know and that he was not going to bother to help educate the other physicians of the county. Whether he meant what he said or not, I will not say, but it is a good idea to have visitors present to read papers, even if they do not know any more about the practice of medicine than you do; they can generally give us some new ideas. The specialists of Norfolk are always glad to advertise in my part of the State, therefore, we have very little trouble having one of them with us at every meeting.

In conclusion, gentlemen, I would like to say that the more you and your members put in your county medical society, whether it be in the form of papers you prepare and read before it or in other work for the improvement of your organization, the more you and your members will get out of it, and the better you make your county society and the stronger you can make your county unit, the better State organization we will have, and therefore the better service we can render to ourselves and to humanity.

IMPORTANCE OF SENDING IN REPORTS AND ANSWERING LETTERS AND TELEGRAMS PROMPTLY

L. B. McBrayer, M. D., Acting Secretary

I have been Acting Secretary of the Society now for my good friend, Dr. Hays, for three years and it didn't take me all that time to find out the general attitude of the Medical Society about answering the letters and occasionally, also, telegrams. My good friend, Dr. Long, told me on one occasion he had invited a certain number of doctors to meet with him and have dinner with him at the O'Henry Hotel in order that they might talk over some medical matters, a matter that had to do with the American College of Surgeons. He told me the ratio of answers that he received was low, notwithstanding the fact he was willing to buy a dinner and he didn't want to buy any extra number of dinners. It is the same way all along. This year in regard to reports we have gotten in much better reports than before. I don't know why it is unless my office force went after them in a better way, or kept after them, or what I suspect from what I have

heard this evening is that we have better secretaries than we have ordinarily had. Now, we never write a letter to a secretary just for fun. No member of the State Medical Society does. For instance, a section chairman writes you and asks you to present a paper. You ought to answer it immediately and tell him, "Yes" or "No." If you haven't your title in mind, tell him you will furnish that later, because he is expected to get up a certain number of papers—he may give you a subject himself—but the Chairman of the Eye, Ear, Nose and Throat Section, I mention him because shortly before this session, the chairman, Dr. Briggs, of Asheville, said he didn't have a single paper; he got busy on the wire. He had written a lot of men and they had not answered. If you want to get it printed you have to turn the program over to the printer a little time before the meeting, because they don't work unless they want to. In my secretary's 1919 report we undertook to get a roster of the men who died in the army. It took us two months. We sent out a request for the information to every secretary. In ten days we got fifty replies; we sent out another letter to the fifty remaining and got twenty-five, then to twenty-five and got ten. We wired and didn't hear, wired again and got twelve. Then we wired some other doctors and couldn't get a reply and then we wired the Clerk of the Court to please find out and give us the information. The Secretary wasn't required to do that but we were handling the job for Dr. Hays and we felt it was a matter which the society ought to have, and that is what it takes to get them. Dr. Bonner could tell you, if he were talking on the subject, up in Raleigh when he gets before the Legislature, if he can just get back—our organization provides for a legislative committee in each county society—the chairman of the committee to the chairman, gets some other doctors to send in a telegram or a letter if there is time, and then the doctors go out and get a few influential people to write to their member of the Legislature. I worked that game myself once. I spent a week down there at my own expense when the society didn't have money, which is generally the case, when I lived in Asheville. I think I got that time about seventy odd telegrams in and it turned the trick. Another thing we did at that time was to ask the member of the legislative committee to interview his Representative and Senator before they left, particularly if we knew just what we were going after. I am going to call another name. In Macon, Dr. Lyles won't answer a letter at all. He is a prince of a fellow, but if you write him a letter and tell him you have a million dollars for him he won't answer it. But he saw his Representative and when we spoke to his Repre-

sentative he said, "I believe Lyles spoke to me about it." That is what it takes to put legislation over.

I wish that we could get a secretary in every society that could be relied upon to answer anything, particularly anything in regard to the society program or legislative matters. Those are two of the things of greatest importance.

Now, I realize I am talking to the men who do these things, and what I have said is not applicable to you folks, but is applicable to the fellows that are not here and if there is no objection, I believe I will make copies of the remarks that have been made here and send them to every County Society. I wish that we might form ourselves into a committee of the whole and each one of us as we meet secretaries of other societies talk with them about it, and see if we cannot get an organization that will stand by the committee that works in Raleigh and that will help with the formation of medical things in which we are all interested.

I will ask Dr. McIver to tell about his county.

Dr. Lynn McIver, Lee County: We have a very small county. There are eight physicians who attend regularly, or rather seven who attend and one who will never attend and has never attended. We do not have much trouble getting them together but we do not meet as often as we should. We meet always once a year but rarely more than twice a year. In December we met once, which is an annual meeting. The plans that these other gentlemen have outlined show we could do better than we do, but we do not have any trouble getting together. The gentleman who will not attend always pays his dues, but I have never been able to get him to attend nor have I ever seen him attend the meetings of the State Society.

Dr. A. McNiel Blair, Southern Pines: Mr. President, Chairman and Gentlemen: There is little benefit in relating one's troubles in a public meeting of this kind. They usually have to be thrashed out with our own people, in our own County Society.

I seriously question whether the members of the county societies appreciate what part the individual society plays in granting them larger fraternal relations. If they did, I am sure they would co-operate more heartily in making for more regular and better meetings.

We feel that during the past year, some ground has been gained in our Moore County Society, in our attempt at more regular meetings.

To be sure, they have not always been largely attended, sometimes not more than two or three members present, but when we consider that most of our men are general practitioners, who are subject to call at any time, perhaps an urgent call demanding their presence just at the time they had intended for one of the meetings; also that we are distributed over a wide area, it is perhaps not surprising that the meetings are not more largely attended.

We do know this, and I am happy to be able to say it, that the Moore County boys are ready to deliver when special work is to be done.

Even Dr. McBrayer has kindly given us credit for our ability to secure financial aid, but I am sure if any of the fellows here have ever been priviledged to be an honorary member, they know that honorary members are only too glad to contribute to the treasury of the neighboring society.

Our meetings have been held chiefly in Carthage and Southern Pines, as these two places are more central, and also have a larger number of resident physicians.

At a recent meeting a suggestion was made that we take up some post graduate work which might be made profitable by the joining together of two or more of the adjacent county societies.

During the past year there have been joint meetings of several societies, but someway or other this feature has not been made permanent as we had hoped.

I want to express my appreciation of Dr. Bonner's paper, with its able arrangement and presentation of essential facts, which every member of the State Society should know. I heartily approve of Dr. McBrayer's suggestion of having the transactions of this meeting put in the State meeting transactions, and I think that this paper of Dr. Bonner's alone should be sent to each and every county society, as it contains facts which are not obtainable except through diligent and persistent digging of a mind such as possessed by Dr. Bonner. We all know his value, and of the good work accomplished during the State Legislative meeting in Raleigh, and there is not one of us but would gladly go to his assistance at any time, helping to carry through any project in which he is interested, as his efforts have always been directed toward the best interests of the County and State Society.

Dr. Wm. P. Holt, Duke, Harnett County: I would like to add to what Dr. Blair has said about Dr. Bonner, that I am afraid the members of the State Society do not know just how much work Dr. Bonner put in at Raleigh. I happen to know. He did so much work there

that none of us can ever be as grateful as we ought to be to him. He sacrificed his own work and his own practice, and but for his persistence we would not be in as good shape today as we are.

About the work of the county society I have had some experience. I do not believe any of us need ever give up hope as long as there are two or three men in the county that are interested. Another thing, I believe is the young men are the men to make secretaries. They have an interest in the work and they enthuse the older fellows that haven't as much as they ought to, they keep after them. The older men put off going for other duties, I do not think we ought to get discouraged about the condition of the county society; as long as there are two or three men in the county that will hang on there is hope of keeping it going. I have noticed one thing: the disruption of the county societies during the war has had its effect. We have not quite gotten over it in every county. If we keep on, though, we will get the county societies working smoothly. I think every county should have a monthly meeting, if there are not but three or four that will go, and the three or four will tell the fellows they had a meeting, and will encourage the others to go next time. I am sure that the secretary of the society is the important one to keep work going, and the man best fitted should be selected every time, and he ought to be helped and encouraged by others.

I have enjoyed listening at the different gentlemen talk because I have been along there myself and know what they have gone through with trying to keep the society going.

Dr. Moir S. Martin, Surry County: If we, as county secretaries, could perfect an organization of the county secretaries in this State, that is the thought that occurs to me. It seems to me we could accomplish a great deal by having an organization of the secretaries and meeting when the State Society meets. If I am not out of order I make such a motion.

Dr. McBrayer: I had the same thing in mind. I feel very much encouraged myself and feel helped even by this small attendance and what has been said here.

Dr. K. P. B. Bonner: I would like to give you a very striking illustration of the importance and far reaching effect of organization in bringing about certain conditions. You take in years gone by the conditions and standards by which men were licensed to practice medicine were almost as varied as the States in the Union, but twelve

or fifteen years ago there was organized a Federation of State Examining Boards and this with the aid of the American Medical Association are causing standards of licenses to become almost uniform. I was very much struck at the meeting of the Federation, where the members of the various boards have gotten together and have solved those problems common to each board in our Union, so that they are now almost on a uniform basis. It has accomplished what each one working independently could never have accomplished. It seems to me an organization of the secretaries would do more to strengthen the State Society than any one thing that I know.

Motion seconded and carried.

Dr. McBrayer: It occurs to me, gentlemen, that we ought to have a little organization of officers and perhaps by next year we can feel our way and see just what we want in the way of additional organization. I am going to move that Dr. Martin be made Chairman of the "Association of County Society Secretaries." Is that a pretty good name for it?

Dr. Martin: I see I have put my foot in it. I feel like some of these other gentlemen ought to serve. I wish you would let me be withdrawn.

Dr. Blair: Mr. Chairman: I believe we should have a permanent secretary. I do not like to tax people whose duties are perhaps already great, yet it is a question of who is best fitted, and who will best serve us. I therefore move that Dr. McBrayer be elected Permanent Secretary for the Association of County Society Secretaries.

Motion seconded by Dr. Martin. Carried.

Dr. McBrayer: It has just occurred to me that it might be better to just let the Secretary of the State Medical Society act as Secretary. Do you think so?

Dr. Blair: We have this thought in mind. It so happens that the two are one now, but we do not know whom you may have up your sleeve, and we do not propose to take any chances of losing your services.

Dr. McBrayer: I thank you most sincerely.

Dr. Blair: I believe Dr. McBrayer can put us into shape better than any other man in the State, and I am sure we will assist him in any way he may find necessary.

Wednesday, April 27, 9:00 P. M.

ELECTION OF MEMBER OF STATE BOARD OF NURSES' EXAMINERS

Dr. C. F. Strosnider's term as member of the State Board of Nurses' Examiners having expired, Dr. D. A. Stanton, of High Point, was nominated by Dr. Cyrus Thompson to fill the vacancy. The nomination was seconded by Dr. Long, and Dr. Stanton was elected.

CONJOINT SESSION OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA AND THE NORTH CAROLINA STATE BOARD OF HEALTH

Dr. J. Howell Way, Waynesville: Ladies and Gentlemen: The hour having arrived, it is now my duty and pleasure as President of the State Board of Health of North Carolina to call to order the annual Conjoint Session of the State Medical Society and the State Board of Health, which is now, as provided by the State laws of North Carolina, to be held.

I desire to introduce a matter for the action of the Conjoint Session sometime during the session—it may last half an hour or longer—and in view of the fact it is very likely that we have as many full seats now as we may have later, I am going to take the floor myself for a moment to introduce this resolution and move its adoption, and I ask the distinguished Past President of the Society, Dr. Lewis, to assume the Chair. (Dr. R. H. Lewis takes the chair as presiding officer.)

Dr. Way: Mr. President, Ladies and Gentlemen: As a member of the North Carolina Medical Society, as an earnest, interested, working and endeavoring to be helpful, member of that Society since the year 1887, as an Honorary Member of the Society, as a man who has through the generosity and goodness of you gentlemen held almost every position of honor and trust within your gift, as a member of the State Board of Health, I desire to submit for your consideration and adoption a resolution which, when I read it, will interest you.

and which will mark in a way a new departure in the policies of the State Board of Health.

The State Board of Health is the child of the Society, as was so eloquently portrayed by the Governor last evening. It is your board, you started it, the legislative body of the State of North Carolina enacted the laws that govern it, but the public sentiment behind, and procuring that enactment, was yours. Originally it was small, originally it had no State appropriation, originally it had scant influence. Those things have changed. The Society was originally weak, it is now strong. As the parent has grown the children have grown and waxed strong also. It has been said from time to time this State Board of Health is exercising too potential an influence in the doings of the Medical Society of the State, in the affairs of the members of the profession in this State. Realizing that whether a thing be true or not, if it is persistently urged and alleged it may do harm to somebody, and if there is a feeling not of the utmost harmony between allied bodies, between the parent and the child, it is bad for both of them.

Now, I presume to read the following resolution. Before I read it, one word more. Not a member of the Board of Health knows this minute what I hold in my hand, not a member of that Board has been consulted by myself in regard to this proposed policy which I am going to ask this body to adopt. I do it on my own initiative, but I do it because I believe it will redound to the vital interest of the Medical Society and will add also to the prosperity, and success of the Board of Health.

With that introduction permit me to read the following:

Resolved:

> That it is the sense of the Conjoint Session of the State Board of Health and the State Medical Society, that whole time salaried officials and other employees of the State Board of Health should not be elected to, or serve in, official positions in the State Medical Society, North Carolina State Health Officers' Association, or other non-official public health agencies of this State.

J. Howell Way,

President N. C. State Board of Health.

Dr. Way: I move the adoption of this resolution as an expression of opinion of this body.

Dr. I. W. Faison, Charlotte: I want to say something about it. It reminds me of the fact that when a boy is eighteen years old and his father is forty he thinks he has more sense than his father. When he gets forty and his father sixty he thinks his daddy has more sense than he has, and I am glad the Board of Health is forty years old.

I am glad of that resolution and I second it and I want it to pass. I know it is right and I know you want it to pass and I know and feel that I have had something to do with it.

Resolution unanimously adopted.

Dr. Way then resumed the Chair.

REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH

Mr. Chairman, Ladies and Gentlemen: I have been asked by a friend of mine, an officer of one of the County Medical Societies, to make the Report of the Secretary "short and snappy." I do not know whether I can make the report "short and snappy" or not, but I am going to try to give you offhand the essential parts of the report and without objection I shall read the Report by title.

ANNUAL REPORT OF THE SECRETARY OF THE NORTH CAROLINA STATE BOARD OF HEALTH

W. S. Rankin, Secretary, Raleigh

PURPOSE AND IMPORTANCE OF CONJOINT SESSION

Mr. President and Gentlemen:

Twenty years ago the General Assembly of this State passed a law (see Consolidated Statutes, chapter 118, article 1, section 7055) which requires the State Board of Health to meet with you at this time and to submit to you a report on its work, both the work which is in process and that which is contemplated—in short, to lay before you an account both of its activities and its policies. In considering the legislative intent in the enactment of this law it is well to consider along with it that of another law (see Consolidated Statutes, chapter 118, article 1, section 7048) in which the State apportions to this Society 44.5 per cent of the control over its public health activities. These legislative expressions of public desire can be interpreted by you to have but this significance: the feeling of our people that you have an exceptionally deep and laudable interest in their general

health, their reliance upon both your judgment and motives for assistance in making North Carolina a healthier State, and their will that you be kept fully informed of both what is being done and what is intended for the improvement of the public health, in order that your natural and special interest in this work be afforded the fullest opportunity to assert itself in reviewing the work of their special officers and in offering such suggestions as to alterations, additions or subtractions, as seem to be in the interest of the general welfare.

It is to be hoped that this Society, collectively and individually, fully understands and appreciates this official expression of the State's respect and confidence and realizes that there are few States in which such a close and cordial relation of society and government has been made possible. It is perfectly obvious that it is to the very great interest of the profession to retain and promote this public confidence and respect so that, when the inevitable improvement in the general death rate is realized by all the people, they may not forget those who made it possible nor cease to gratefully remember the unselfish interest and guiding counsel of the profession in the achievement. Your presence here must be taken as an indication and as a measure of the interest of the Society in the State's provision and effort to court its friendship and counsel.

The State Board of Health has been submitting these annual reports to the Society for a period of twenty years. Today, having attempted to lay new emphasis upon the importance of the Conjoint Session, I propose, as it were, to begin anew and submit this report as if it were the first report of the activities and intentions of the State Government in the field of public health that had ever been made to your Society, and to do this with the sincere hope that we are turning a new leaf in the interest of the State Medical Society in the activities of the State in the field of public health. This report will deliberately omit a statement of the detailed activities of the State Board of Health for the past year for the reason that this material is fully covered by the recent Biennial Report, a copy of which any member of the Society may have for the asking. I shall now, with your permission, proceed to lay before you for your review and action the policies of the North Carolina State Board of Health, using the term "policy" in its general sense, to include both activities and intentions.

STATE HEALTH POLICIES

Policies are formulated purposes. A policy is a plan for discharging a responsibility, for meeting a duty. State public health policies are the plans of the State for discharging the State's responsibilities

in the field of public health. The State's responsibility in public health work is to reduce death rates. Reduced death rates are the sum total of public health activities, the ultimate objective and the supreme purpose of a health department. Reduced death rates mean that morbidity rates the prevalence of diseases, have been diminished, that susceptibility to disease has been decreased, that the health of the average citizen has been improved. All State public health policies have their origin in the intent of the State to reduce death rates and have for their sole end a reduction in death rates.

There are four cardinal characteristics which distinguish State health policies from Federal, county or municipal health policies, and which are as follows: (1) public health duties that are administratively impossible for the county or local government; (2) public health duties that are economically impracticable for the county or local government; (3) public health duties of such exceptional importance in their relation to the State's death rate that the State, mindful of its supreme responsibility, a reduced death rate, cannot safely leave them entirely to the local governments; and (4) public health duties that involve a mutual interest and require joint activity on the part of State and local governments. Any one of the above four characteristics which attaches to a public health responsibility classifies it as a State policy, and so we may divide State health policies into four classes. It is my purpose to lay before you under its appropriate class each existing and contemplated State health policy, pointing out the essential State characteristic and its relation to the practice of medicine.

CLASSIFICATION OF STATE HEALTH POLICIES

CLASS I: *State Health Policies Administratively Impossible for the County Government*

1. *Protection of public water supplies.* Only the State can protect the purity of streams which of necessity must be used for domestic water supplies by many municipal and industrial establishments. A stream may flow, usually does, through several counties before reaching one whose people use its water for domestic purposes. The county vitally concerned in the purity of a stream, the town or city that is dependent upon it, has no power to protect the stream from sources of impurities that may pollute it before it reaches those who make use of it. The responsibility clearly rests upon the State to protect the purity of water supplies. Streams belong not to the counties, but to the State.

This policy for the protection of public water supplies affects the practice of medicine in two ways: (1) It accords with the finer idealism of the profession and enables the profession to use its influence through the government in making very material reductions in the prevalence of disease and in the occurrence of unnecessary deaths. (2) This policy appears, at first sight, to be in direct conflict with the economic interests of the profession. More thoroughly considered, it is by no means certain that the economic interests of the medical profession are impaired by this policy of disease prevention through improvement of the purity of public water supplies. Of course, as a public water supply is made safer for use typhoid and diarrheal diseases decrease, *but as yet there is no such thing in the absolute and larger sense as the prevention of disease and death.* Certain diseases may be prevented, but sickness, physical incapacitation, is not preventable. We may change the age of its occurrence with respect to the individual, and we may change the character of the sickness, we may save individuals from having typhoid fever and diarrheal diseases, but in doing so we make possible cases of cancer, arterial and cardiac diseases, Bright's disease, and all those other ills that are associated with worn-out vital machinery. In saving the baby's life from a case of cholera infantum we make possible a life of three score and ten years with something like a thousand days of sickness. It is, therefore, perfectly clear that the acute and fatal case of cholera infantum, as typifying the acute infections in general, is a direct and a big loss, economically speaking, to the medical profession. This policy of State protection for public water supplies is in line with both the idealistic and economic interests of the medical profession.

2. *Control of communicable diseases.* Contagion is no respecter of county boundaries and only the power of the State can protect the careful from the careless county. Supervisory control over matters of quarantine is, therefore, of necessity a State policy.

Here, again, we have a State health policy that is in full accord with the higher and larger purposes of the profession; moreover, all of the considerations which I mentioned in discussing the effect on the economic interests of physicians of preventing the acute waterborne diseases apply here with respect to the prevention of the acute contagious diseases. In saving the infant from measles and whooping cough we do not save it from sickness. We make possible a long life with an aggregate of several years of sickness instead of one short and possibly tragic week, and in making this change the idealism and the business of the profession are in perfect harmony, both are served.

This policy, however, has another relation to the medical profession in that it imposes upon its members the duty of reporting to the public authorities the foci of infection which they encounter in their daily routine. Deducting the reportable diseases reported by householders and the occurrence of multiple cases in a single family covered by one report, the 2,000 physicians of the State are required to make approximately 20,000 reports a year, which gives the average physician ten cases a year to report, not quite one a month.

3. *Vital Statistics.* The collection of vital statistics, restricting the term to reports of births and deaths, is throughout the United States regarded, without question, practically, as a State and not a county problem. The vital statistical records of a State would not be approved by the Bureau of the Census of the Federal Government nor accepted by any other State or the world at large if these statistics were collected under some system of county instead of State administration. The necessity for State regulation of vital statistical practice, the character of such practice that makes it essentially State work, is that the value of vital statistics depends entirely upon the soundness of conclusions arrived at by comparing the statistics of one place, town, county, or State, with those of some other places. The value of statistics is almost wholly one of comparison. In order to compare the statistics of one or several places the system of collection, the system of classification, the system of tabulation, must be uniform. In statistical work the world over the principle of standardization is recognized and accepted as essential. Consider the converse, the ridiculous, wasteful, useless, idea of each county in a State having its own law for collecting its birth rates and death rates, classifying by townships, and towns, and deaths according to its own ideas, and the different counties with different kinds of tables, and, what is even more important, some counties enforcing their law thoroughly and other counties enforcing their law indifferently and flaunting in the face of their honest neighbor, with an accurate and a high death rate, an inaccurate and low death rate.

There is still another reason why vital statistical practice should be regulated by the State and not by the counties, and that is this: the sole responsibility of a State to its people in the field of disease prevention is measured in a reduction of death rates. Without a thorough and well enforced system of vital statistics it is impossible, on the one hand, for a State to demonstrate to its people that it is actually preventing disease and saving life, or, on the other hand, for the people to correct in their State government those deficiencies associated with an expenditure of public funds for health improve-

ment where no death rate reduction occurs. The State, then, must insist upon an adequate policy of vital statistical records in order to measure its own efficiency in the field of public health and to have that information indicating needed changes of policy or machinery. The relation of this policy to the medical profession lies in the fact that, it is only through the wisdom and foresight of those in the past who have collected vital statistics that our profession can stand in the absolutely unassailable position of having contributed to civilization in such a way as to have made possible an increase in average longevity during the last 400 years (the time elapsing since the beginning of vital statistical practices) from 21 to 42 years; as to have made possible an increase in longevity during the last century from 31 to 42 years; as to have made possible a reduction in the general death rate in this country of 28 per cent in the last 30 years; as to have made possible the practical elimination of typhus fever, smallpox, and yellow fever; as to have made possible a reduction of the death rate from tuberculosis of 35 per cent and that from diphtheria of 83 per cent within the last thirty years, and so on. The glorious achievements of the profession are permanently recorded in the vital statistical records of the world, and *nowhere else* can the profession lay its hands on the proof of what it is really worth to humanity.

Here, again, however, we have the rose not without its thorn. The reporting of births and deaths requires that the State impose a duty upon the members of the profession. There are 110,000 births and deaths occurring in North Carolina each year that must be reported. Of these, 30,000 are reported by midwives and 80,000 by physicians, so that the average physician reports about 40 births and deaths a year, or three and one-third births and deaths per month, not quite one a week, a matter of five minutes.

4. *Medical Inspection of Schools.* The finding and the correction of those physical defects among school children which are prevalent to so great an extent as to interfere not only with the progress of the afflicted children but also with the progress of their classes is generally recognized as a State duty, as a legitimate object of State policy, for the reason that the State and not the county assumes the primary obligation for education, and for the further reason that this work is undertaken primarily on account of its bearing on education and only secondarily on account of its relation to the general health problem. In North Carolina this last statement is emphasized by the fact that 80 per cent of the expenses of this policy are paid not out of the funds of the Board of Health but out of the funds of the State Department of Education. In this connection it may be interesting

to call attention to the Fess-Capper Bill for physical education which was introduced in the last Congress and will be re-introduced in the present Congress. This bill originated not with the United States Public Health Service, the Federal health authorities, but with the United States Bureau of Education. It carries a total appropriation of $10,000,000 which is to be apportioned among the States on a basis of school population. The amount apportioned each State is available when the State puts up a like amount and the combined fund is to be expended under the educational authorities of the State for (a) providing for the teaching of gymnastics and supplying more adequate recreational facilities in the public schools; (b) stimulating the teaching of hygiene and sanitation; and (c) making possible a more thorough inspection of school children for common defects and for supplying more adequate treatment. This bill in the mind of Congress and, to a certain extent, in public thought is being regarded as the measure that has been so generally discussed and advocated in the press for making impossible at any future invoicing of the physical strength of the country the finding of 38 per cent of men between 20 and 40 years of age physically disqualified for the defense of their country.

This policy in regard to the common physical defects of public school children is related to the medical profession in that it proposes to do by public machinery and at public expense and at wholesale rates, work that has heretofore been left to rather than fallen into the hands of private practice. One cardinal consideration presents itself which the professions concerned, medicine and dentistry, must accept or reject, and that is this: would such a principle, if carried out, invade the field, largely untilled though it has been and is, of legitimate and needed business of the two professions to the advantage or the disadvantage of the general welfare.

There are good men, unselfish and thoughtful men, who sincerely believe that the Government's assumption of this work, while a direct and immediate benefit of the public, will indirectly and ultimately so cripple the resources of the two professions that, considered from a more farsighted and broader viewpoint, more harm than good will result. We must not be so idealistic as to forget that, after all, the profession has a material and economic foundation which must not be lost sight of, so that the question, what will be the effect of such a State policy upon the economic underpinning of medicine and dentistry, is a legitimate one. In answering this question we must not overlook the educational effect of extensive State treatment for the school population between the ages of 6 and 12 years for common

defects of mouth and throat and popularizing and emphasizing the value of dental treatment and the treatment of nose and throat conditions on all the rest of the population.

There are others, equally sound in their judgment and high of motive, who believe that the danger to the public welfare through omission to deal with these common defects of school children, dental troubles, adenoids, and tonsils, and defects of vision, will result in greater loss to the public interest than if they were adequately treated under a public policy. I share this latter view and if I understand the attitude of the North Carolina State Board of Health it likewise shares this view. Knowing, as we do, that there are some 650,000 school children in the public schools of this State whose future efficiency and happiness is conditioned to some extent upon the treatment of their dental defects, and that there are 40,000 children in the public schools of North Carolina, retarded themselves and retarding their classes, and whose future is conditioned to a considerable extent upon treatment of bad throats, I must confess that I am more concerned with dealing effectively with that which lies directly before us than I am concerned with considering our remote and hazy horizon. The priest and Levite, I presume, had some very important business down in Jericho, some very important services to conduct, some great congregations waiting for them, but the lesson is that they should have deferred these more remote and, if you will, larger duties in order to give immediate relief to the stranger who was down and out by the roadside. To quote one of Dr. Osler's choice sayings: "Our duty is not to see what lies dimly at a distance, but to do what lies clearly at hand."

In this connection, I want to commend the position taken by the Buncombe County Medical Society. That society objected, not to the principle, but to the method followed by the State in giving treatment to public school children. The members of that society did not stop, however, with objection, they were not content with the weakness of negative criticism, they offered an effective substitute. They equipped a local dispensary and have themselves gone out and assisted their local health officers in bringing these children in to a dispensary where within the past year 125 have received surgical treatment. The profession must find ways to treat these common defects of public school children, physical handicaps that so seriously condition the productivity and happiness of their whole lives, or else stand aside and not interpose themselves between the children and the State, which, in the spirit of the Great Physician, says, "Suffer the little children to

come unto me, and forbid them not: for of such is the kingdom of Heaven."

The activities of the State Board of Health in this field have been criticized both as to principle and as to method. There are two criticisms as to method that seem to me to have considerable merit and upon which we would especially appreciate an expression of the sense of the conjoint session. The two criticisms are as follows: First, that in selecting one of two or more eye, ear, nose and throat specialists to hold clinics we discriminate against the others. It is very easy to see how dissatisfaction with this discriminatory selection of specialists should arise. Second, that in fixing a fee to be assessed against parents, the State tends to establish, regardless of its intention and regardless of the size of the fee fixed, a rate for public work done wholesale which is embarrassing to those who do private work retail in that it tends to produce dissatisfaction among their clientele over fees charged for private work that, considering the initial outlay in time, money and cost of equipment necessary to do the work of a specialist, are fully justified. To avoid these two objections, namely, discrimination among specialists and tendency to establish a rate, it has been proposed that the State employ a full-time eye, ear, nose, and throat operator of its own, and that in using its operator no assessments against the parents be made. There is a distinct merit in this proposal. The reason the State Board of Health decided against a full-time State operator in the beginning and for the use of the local specialists throughout the State was on account of the advantage, both to the public and to our own specialists, of introducing the two parties and establishing an acquaintance and confidence between those who needed treatment and those who could supply it. After an experience of eighteen months, we are not sure which is better, to continue the practice that we have followed or to use a full-time State operator and give the operations free of cost to all parents. On this point the State Board of Health will especially appreciate an expression of the sense of this conjoint session.

Class II: *State Health Policies Economically Impracticable for the County Government*

1. *Public Health Education.* "Sanitary instruction is more important than sanitary legislation," but there are many people who think that public health consists largely in securing the enactment and enforcement of sanitary laws. Supplying the people with pertinent information and suggesting a reasonable course of action is all

that is needed for the socially normal, who compose at least 95 per cent of the population; and for the other 5 per cent (not always the same 5 per cent) who are socially abnormal, only now and then is the power of expressed majority will, law, necessary to invoke. So does the educational work of a State board of health compare in importance with its legislative and judicial duties. Education is the very basis of public health work and those who neglect it are inevitably doomed to failure.

The educational work must, for economic reasons, be largely centralized with the State. To regard such work as a part of the functions of the county government would require a tremendous multiplication of personnel, typesetting, printing, binding, etc., with unpardonable extravagance.

The relation of this policy to the practice of medicine is in line with both its altruistic and economic interests. In advancing popular intelligence regarding health we assist both the public and the profession. It is those who understand what health means and who are aware of its hazards, the hygienically intelligent, who employ physicians. The ignorant, who neither understand nor value health, make little use of doctors.

2. *Laboratory Work.* The business of a public laboratory is to supply to the profession, at least to a large proportion of physicians whose resources in time and money will not permit them either to equip or to operate a private laboratory, certain diagnostic facilities at public expense and to make available for the people, either free of charge or at a nominal charge, certain biological diagnostic and curative products that are ordinarily so expensive as to greatly restrict their life saving value. It is apparent that this sort of work, with the present postal, express, telegraphic and telephonic facilities, may easily and largely be centralized rather than distributed among multiple laboratories with overlapping expenditures resulting in unpardonable extravagance of public funds. Laboratory work is, therefore, on account of the economic considerations involved, carried on under a State rather than a local policy.

The relation of laboratory work to the practice of medicine contributes advantageously to the realization by the profession of both its immaterial and material rewards. It enables the profession to do better work, assisting in diagnosis and making treatment available for sickness among the poor where otherwise delay or difficulty in securing expensive sera would interfere with the work of the attending physician and, in many cases, cost the life of the patient. The helpful relation of the laboratory to both profession and public, I

believe, is too well established, too fully understood, to need any extended comment.

Class III: *State Health Policies Relating to Certain Diseases and Conditions of Major Importance as Contributing Factors to the State's Death Rate*

There are a few diseases and conditions that play such a transcendently important role in the State's death rate, for which the State and not its constituent political units must always be responsible, that the central administration cannot shirk its responsibilities for these more important diseases and conditions, decline to formulate and give leadership to a plan of attack, or leave their control to the uncertain and limited resources of the counties. The State that takes the position that tuberculosis is a county problem when tuberculosis is responsible for one-tenth of its death rate, that the venereal disease problem is a county and not a State problem, when syphilis alone, according to Dr. Osler's estimate, is responsible for one-tenth of the deaths, that infant and maternal hygiene is a county and not a State problem when nearly one-third of all deaths occur within the first five years of life, is a State that sooner or later will be called to account by public opinion and in its account will be unable to show a reduction in death rates or a condition of death rates that will justify a continuance of public confidence in its health administration. In line with these considerations practically all progressive State departments of health have established or are attempting to establish special divisions or bureaus for dealing with these major factors in their death rates.

1. *The State's Tuberculosis Policy.* This policy seeks: (a) such information through the reporting of cases of tuberculosis by attending physicians as will enable the State to know the size of the problem and the distribution of the disease among the races, industrial classes, and geographic units, and to be able to appreciate changes in the mortality rates of the disease as the State institutes measures for its prevention; (b) to furnish treatment to a limited number of cases (at present not over three or four per cent) with a view more largely to improving and establishing standards of diagnosis and treatment through which general influence, rather than by the State's treatment of a small per cent of cases, the death rate from this disease will be lowered; (c) to carry on an educational campaign against tuberculosis through the distribution of literature, public addresses, and other means, and especially through information supplied to homes from which cases of tuberculosis have been reported.

This policy is in line with both the idealism and material advancement of the medical profession. The death rate from tuberculosis has been declining for 30 or 40 years, which is to the advantage of the public; at the same time, with the decline in the death rate, public appreciation of the value of medical attendance in the disease has been so increased that the profession at present is receiving four or five times as much material reward for service rendered to cases of tuberculosis as formerly when the death rate was much higher. Tuberculosis death rates must continue to be reduced, or certainly must be held at their present levels, until scientific research makes further reduction possible, but in this task not less, but more medical service will be required; so that, here, as elsewhere, we see the idealism and the material necessities of the profession moving along arm in arm.

The State tuberculosis policy imposes a duty upon the medical profession of reporting some 8,000 or 10,000 cases of tuberculosis a year. Less than half of this number are reported. If the 2,000 physicians reported 10,000 cases during the year the burden imposed upon the average physician would be the reporting of five cases per year, less than one-half case per month.

2. *The State's Policy for the Control of Venereal Diseases.* The underlying reasons for the State's interest in the venereal disease problem have already been suggested, and while the methods of treatment are considerably different from those proposed for tuberculosis, the relation of this policy to the interest of the medical profession is similar in principle to what has been said regarding the relation of the tuberculosis policy to the practice of medicine. Venereal diseases must be and will be decreased, but to decrease them not less but a far greater use of the medical profession will be necessary. Much has already been accomplished in diverting the venereal case from the treatment of the druggist and quack to the office of the regular physician, and much more will be accomplished in this direction. It is now, under State laws, within the power of any county medical society to see that every case of venereal disease is treated by the licensed physicians of the county, and the State health administration offers to any county medical society its complete and potent cooperation in bringing this about. The venereal disease policy is another State plan requiring reports of physicians. There are 50,000 cases a year of gonorrhea and syphilis in North Carolina. 10,000 or 11,000 cases are reported, about five or six cases a year for the average physician.

3. *Infant and Maternal Hygiene.* This policy takes official cognizance of the tremendous and needless loss of life within the tender

years of infancy and early childhood, that is, within the first five years. One-third of the deaths occurring in the State occur among children under five years of age; moreover, there are 600 women who die in or as a direct result of labor each year, and there are thousands of others whose future physical efficiency and happiness is much impaired on account of injuries and infections incident to pregnancy and labor.

The State Board of Health in meeting this problem is endeavoring to get into official touch with as many cases of pregnancy and with as many mothers of infants as possible and through such official contact to furnish these women helpful information as to the hygiene of pregnancy and labor and the proper care of their babies. At the present time we have developed a system of correspondence that reaches about 500 prospective mothers a month and the reports are increasing each month. Among the important things that these mothers are urged to do is to secure competent medical attendance wherever possible and not to rely upon midwives; moreover, they are urged to get in touch with their medical attendant during pregnancy for guiding counsel and not to wait until labor to send for the doctor. We are also communicating by letter and with literature with about 300 mothers with infants each month and are emphasizing with them the importance of watching the weight curves of their infants and noting the indications of incipient trouble and keeping in touch with the family physician wherever danger threatens and before disease becomes aggravated or serious. In this official and educational contact with about 10,000 mothers a year we are seeking to save the babies by bringing about a more intimate and serviceable relation between population and profession. We are also attempting to reach the midwives through correspondence and county conferences and endeavoring to impress them with the danger of vaginal examinations, and we are urging them to send for physicians when such conditions as history of previous difficult labors, tardy labor, prolapse of parts, abnormal position, headache and visual symptoms, excessive bleeding, etc., are present.

Here, again, is an important State health policy serving the public need and at the same time advancing both the altruistic and economic interests of the profession.

4. *State Privy Policy.* Some general legislation for decreasing filth-borne diseases originating from open insanitary privies so located as to endanger large condensed populations has been regarded and adopted as a State policy because of its large bearing upon the death rate of the State. This policy is related to the practice of medicine

in ways that I have already discussed, and repetition here may be avoided with the simple statement that it is in full accord with the idealistic interests of the profession and not in conflict with its material interests.

Class IV: *State Health Policies Involving Mutual Interest and Joint Action with the County Governments*

The development of county health work is a matter of great mutual interest to both State and counties: to the counties for giving additional protection to the health and lives of their citizens over that which the State supplies; to the State in that the greater the activity of the counties in the conservation of life the more pronounced and the quicker will a fall in death rates of the State occur.

The State recognizes its interest in county health work accepts some of the obligation for providing adequate county health machinery. In accepting this obligation, the State, with certain co-operative agencies, more especially the Public Health Service and the International Health Board, is prepared to offer material assistance to the counties, financial assistance in supplying the necessary budget and the assistance of trained health officers for either assisting in meeting a local emergency or helping a new health officer to organize his work. The State's financial assistance to the counties in meeting the expenses of the local department will in the future be conditioned more and more upon the items of service rendered and correspondingly less upon official machinery employed. This is a most important principle in State and county relationship which might profitably be considerably enlarged upon, but, in the interest of time, I shall merely call it to your attention in order that if the conjoint session is interested, the matter may be more fully developed in the discussions.

The relation of this policy to the medical profession lies in the fact that the county machinery, which the State assists in financing and in an advisory capacity, when called upon to do so, simply carries out in a more careful and elaborate way the general policy for controlling communicable diseases through quarantine measures and vaccinations, the medical inspection of schools, the sanitary regulation of privies, than is possible in those counties without full time health officer provisions, and, therefore, the local policies bear the same relation to the practice of medicine as the more general State-wide policies which have already been discussed.

CONCLUSION

No policy that I have set forth above, examined thoroughly and considered in its larger aspects, is in conflict with either the material or immaterial interests of the medical profession; on the contrary, all of them are promotive of the idealism, uses and rewards of medicine. As in the activities of life generally, so in the field of medicine, material and immaterial rewards go hand in hand. The rule is that those who serve the larger interests are most rewarded and those who are more concerned about the smaller interests are least rewarded. Upon this principle of reward the evolution of civilization has been accomplished and will continue. To believe this is to have faith; not to believe it is to be without hope, without incentive, without faith, which is to be dead in spirit. "I have been young and now am old; yet have I not seen the righteous forsaken nor his seed begging bread."

Dr. Rankin: There have been a great many criticisms of the policies of the North Carolina State Board of Health. Some of these criticisms have come from men who, in both brain and heart, judgment and motive, are without impeachment. They are good men, sincere in their motives. I differ with them. I have told you what I think in the time that was consumed. Most of the criticisms directed against the Board of Health are rather general, that is necessarily the case when those making the criticisms have not had the advantage of coming in and finding out exactly what is being done. I don't know but that it would be a good thing for the Conjoint Session to appoint a committee of three or five to come to Raleigh and spend three days or a week, as long as you will, take the books and go through each bureau of the Board, they are all wide open, and go over all the State health policies and say what you think of each and all of them so that we can answer these general criticisms. I want to ask you to do this; we have got to depend upon you. It is a bad day whenever public health work gets beyond the medical profession. I don't know but that it would be a good thing for the floor to consider the appointment of a committee so that any criticism that needs to be made may be specific. You can certainly point out a great many things, and I believe we are all interested in the same big motive when it comes to the last analysis, and that is in serving this great old State.

Dr. McConnell: I don't think I would be out of order if I would extend the thanks of the Session to the Secretary for presenting the report in the way he did. That is far better than a report dealing

with a lot of figures and statistics which we could read at our leisure, and the suggestion that someone gave him I consider a timely one.

DR. WAY: Have you anything further to report?

DR. RANKIN: I am not looking for trouble, Mr. Chairman. I know people say "Fools rush in where angels fear to tread," but I want you gentlemen to consider that suggestion, namely, the appointment of a committee which will take over some of the responsibility for answering general criticisms. If we are doing anything we should not, when they have gone into the facts we want that information. I think that is the right way to handle it.

DR. WAY: Is there any further business to come before this Session?

DR. I. W. FAISON: Mr. Chairman: At the meeting of the Section on Pediatrics yesterday I introduced this resolution, which was passed, and which is sent up here to the Board of Health to carry forward what you are so well doing, and no man appreciates more what you are doing than I do. This I want to introduce as a preventive and as an eradicating measure:

RESOLVED:

> That it is the sense of the Section on Pediatrics of the Medical Society of the State of North Carolina that toxin antitoxin is a preventive of diphtheria, and under the best light obtainable, is an absolute eradicator of the disease, and that it should be made in the State Laboratory and furnished to physicians in three 1 c.c. doses, as a safe and efficient remedy to be given to children under the age of eighteen months of age and up to ten years."

This has stood the test for four and a half years, where children have been given toxin antitoxin, diphtheria has been completely eradicated, and no child who has had three doses of one c.c. each of antitoxin, *if made by a good laboratory,* not one has developed diphtheria. If this is the fact, and we believe it and recommend it, a great step forward will be taken, one equal to smallpox vaccine by the noted Jenner. I want to introduce this resolution.

Motion seconded by Dr. Moore.

DR. C. A. SHORE, Raleigh: Mr. President, the State Laboratory of Hygiene has wanted to distribute diphtheria toxin-antitoxin for a

long time. In fact, we have already distributed a good deal of it, but lack of funds has prevented us from taking up this work in an adequate way. The last legislature responded to our plea for help and we are now practically ready to send it out; the announcements are being prepared and will be mailed to each doctor within the next few days.

The toxin-antitoxin mixture is very expensive to produce and each series of three doses costs the laboratory something over $1.00. It is absolutely necessary to guard against waste and for this reason it has been decided to charge a nominal sum of ten cents for each series of three doses. It is believed that even this small sum will remind the doctor that the product must be taken care of. If any great amount is going to be wasted we shall be unable to supply the State.

Dr. Way: Please make a statement with regard to the evanescent character of the material.

Dr. Shore: We have perhaps all heard of the unfortunate occurrence in Texas where a number of deaths followed the use of the toxin-antitoxin mixture sent out by one of the commercial laboratories. Our product has been tested by some of the pioneers in this work and they vouch for its reliability. Great care should be used in handling this product and it should be kept in a cool place at all times. The danger from heat is not so much that it may render the product toxic—although this is a possibility—but rather that it may render it inefficient. A freezing temperature is not required but temperatures from 36 degrees to 40 degrees Fahrenheit, are best and this is about the temperature of the ordinary ice box.

It might be well to add that we do not claim that the immunity produced by the three injections will be absolute, but there is good ground for hope that it will do for diphtheria what typhoid vaccine has done for typhoid fever.

Motion carried and resolutions adopted.

Dr. Way: The Body will be pleased to hear from any gentleman who has questions to ask, criticisms to make, information to impart, or advice to offer.

While we wait, gentlemen, for the development of anything further to come before this session, with your kind permission, I will submit the following report of a special committee upon Public Health and Administration.

This Committee, you will recall, was appointed at the last session of the State Medical Society upon a recommendation made in President Reynold's address. It was intended to be a permanent committee, an official committee, not a personal committee, and in the language of the resolution adopted at the last session was to be composed of the President of the State Board of Health, of the State Board of Medical Examiners and the State Hospital Association. I submit their report.

REPORT OF SPECIAL COMMITTEE UPON PUBLIC HEALTH ADMINISTRATION

(See Pages 443-447. Referred to this session of House of Delegates. See Page 447.)

Dr. Way: I bring the matter before you gentlemen for your action. I advise you that this report was submitted yesterday afternoon to the House of Delegates of the State Medical Society, and after being unanimously adopted by that body the committee was ordered to present it to the Conjoint Session, with the advisement of their having unanimously adopted it.

Dr. W. J. McAnally, High Point: I am not a spokesman of any faction or of any county. There has been some criticism and I have been close to it and know the circumstances under which some of it has arisen. It is not due to any lack of appreciation of the magnificent work of the State Board of Health. It is the result of the working of an old injustice that has been in existence since free clinics have been established. Human ingenuity, human efforts, however honestly they are put forth, are unable to prevent injustice on all occasions. These clinics have to my knowledge, been imposed upon. Very wealthy people have taken advantage of these clinics to get work done solely for the inducement of a cheap price. Now, this is no fault of the men when they know and appreciate that injustice is being accomplished in the community. It is no reflection whatever upon the State Board of Health and whether it can ever be remedied or not will have to be solved by a wiser man than I. I can offer no solution. I simply state this because I am sure the whole criticism results from the fact that injustice has been done or impositions have been practiced, and feeling the effect of this injustice criticisms have been made. That there is lack of appreciation of the State Board of Health, that there is littleness behind it, is not true.

I say again that I come as a spokesman for nobody, there is nobody present that had any idea I was going to make these remarks. But I hope I make clear this point: that there is no friction, there is simply a reaction from injustice and the injustice is not the injustice of the State Board of Health. If it has appeared to anybody there is littleness it is not the littleness of the men who have made the criticism, it is the result of human weakness. I have several times said I know the men, they have been imposed upon. That is the whole thing and there is nothing else to it and there is not much to it, anyway. I make this motion, that the North Carolina Medical Society, in conjoint session with the State Board of Health, expresses its appreciation of the magnificent accomplishments, (and I am not throwing bouquets, it is simply facts) that the State Board of Health has demonstrated in its various activities. It is hardly necessary to name what I have in mind —diphtheria antitoxin, the work with the pregnant women, the hookworm campaign, the typhoid prevention, the index by which we measure the reduction of the death rate of North Carolina.

I make this motion that the North Carolina State Medical Society expresses its appreciation of the work done by our co-laborers and our servant, the State Board of Health.

Dr. Way: One little point that you failed to make quite clear that I am sure while you have the floor if you will make yourself clear it will aid others who may follow you. Four times you referred to injustice having been done. Will you please state in what way.

Dr. McAnally: I am very clear about that. The injustice has been that wealthy men, as I understand it, in large cities have rolled up in their fine limousines and attend the clinics. I think common sense would show the clinics are not for the free treatment of people who should be just enough not to impose upon the charity or educational features of that clinic. In the same way we get the impression it is an injustice done by men able to pay for the work. It appeals to me and to other men as an injustice perpetrated by a man who is able to pay.

Dr. N. B. Adams, Murphy: There are a few things I want to say in regard to criticisms that have come up from my section of the State, especially from the counties beyond the Blue Ridge. Now, with that statement, if I am in order, I will proceed. I thought we were going to have the question of the adoption of your report, and I thought I would say what I have to say under that.

Motion for expression of thanks to the State Board of Health seconded; adopted.

Subject of report of committee moved to be adopted; seconded. The Chair announced the motion open for discussion.

Dr. Adams, speaking: Mr. Chairman, I am sure that what I may be able to say to you is after due thought and consideration, and that I voice the sentiments of all the doctors who live in the counties beyond the mountains and that they are in perfect accord with what I shall say to you. Every layman and every doctor with whom I have talked are highly in favor of, and endorse the work of the State Board of Health generally, but there are some things in this report which have brought about the criticism mentioned above. We have reference to the tonsil and adenoid clinics as being carried on by the State Board of Health in our section of the State.

I should like to refer you to the editorial as set forth in Southern Medicine and Surgery, of the March number; it says:

"State Board of Health Clinics.—There is a tendency on the part of the federal government (U. S. Public Health Service) and the departments of health of some States to establish clinics for the treatment of certain diseases.

"There may be rational grounds for this policy in sparsely populated regions of the country which are not provided with a sufficient number of resident physicians to care properly for the sick. With this exception there is no rational basis for this sort of paternalism on the part of the federal or of the State government. The State properly may standardize and enforce certain rules of procedure; notification, methods of disinfection, and the like, for the medical practitioner in the management of patients who suffer from communicable diseases; but the treatment must be left with the physician."

And also from this little pamphlet which I hold in my hand. It is, as you see, The Principles of Medical Ethics, as adopted by the American Medical Association. It says in article 6, section 2: "It is unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate service to his patient or which interfere with reasonable competition among the physicians of a community. To do this is detrimental to the public and to the individual physician, and lowers the dignity of the profession."

Gentlemen, I was taught at the time of my graduation to adhere to the code of Medical Ethics. I was instrumental in organizing our county society, and have attempted to teach them that they should

live up to the principles as laid down in this code of ethics. We believe when it says that "To do this is detrimental to the public and to the individual physician, and lowers the dignity of the profession," it tells the truth. Therefore, there is no question in my mind but what in these clinics, when the State Board of Health sends a man in any county or community they violate this code of ethics. And it is in my opinion that any one doing so must know that he not only demoralizes the people, but the profession, and lowers the dignity of the practitioner of medicine.

Dr. McAnally: The doctor, I think, is absolutely right. If I properly understand the statement of the editor and the ethics of the American Medical Association, if I understand the motive of the State Board of Health in its clinics, if I thought the State Board of Health was going permanently into this business, and when they got rid of all tonsil cases they would then send a typhoid fever man and then appendicitis and keep a man available for this, if I thought they were going to monopolize the thing it would be different. We have not understood it to be the purpose, they did not intend to do this work and make it a permanent business, but to educate. I think that has not been the idea in my community at all for the State Board of Health to monopolize the practice of medicine but these campaigns were educational and to get the educational features you had to show the people. I don't believe to bring the argument that it is lowering the profession is just when the educational feature has been emphasized all through the whole business. If when we are done you could not do anything, the State cannot hardly. My idea is that it is educational and when the educational effect has been arrived at, the State has not any intention now or in the future of undertaking the continuance of this work to other children that come on. That looks to me like the only reasonable way to view the subject.

Dr. W. R. Wellborn, Elkin: It has worked a hardship in our county, at least in the last two years. The State has sent a man into our county and our man has not had a great deal of that kind of work since the State has sent in the man. In addition they have cut the price down and it has worked a hardship on him. If it is only an educational matter perhaps it hurts him and he is a man up in age and in a short time he will be out of the business. At the present time it is hurting some of our elderly practitioners.

Dr. H. D. Stewart, Monroe: The Bible says "the poor you have with you always," and it is going to be that way as long as time stands. About ninety per cent of the people will never be reached

except through the State Board of Health. If a man sets himself up as a specialist in a city to cure diseases a great many people will hesitate when they hear the fees, until they are dead. A lot of them will hesitate to take their children in until it is too late. I recall Dr. Rankin said the business had increased for the doctors since the tuberculosis campaign had been on. It is a bad thing doctors can make so much out of tuberculosis. Lots of people love money so well they will die and go to the devil before they will go to the specialist, and I think the State Board of Health ought to be encouraged in every possible way in the educational campaign in the State of North Carolina in the cure and the prevention of disease. You cannot cure disease through the general practitioner or the specialist if the people do not learn something because there are so many doctors already turned loose that would not know a spot on the lungs from a spot on the retina. A lot of times it is called indigestion, nervous prostration, female trouble, liver trouble, stomach trouble and about a dozen other things when it is nothing in the world but tuberculosis. I know of one case treated for stomach trouble for four years and died with tuberculosis. He took enough medicine to stock a drug store. Both the doctors were turned out of the Medical Society. I believe in standing by the State Board of Health when they are right and opposing them when they are wrong. When they get too much politics they are wrong. There is nothing that hurts efficiency more than politics. Efficiency and politics do not go hand in hand in the State Board of Health, the National Government or anything else. I believe these free clinics occasionally are good things. I was in favor of it in my county. They took out tonsils, it had an educational effect and it helped out in various ways. There are several hundred patients that would never get treatment if they waited for a specialist. There are also a certain class of people that are natural dead beats. They would walk around with $500 in their pockets and tell you they are a pauper. There are a few such cases in our county. These people ought to be shooed off. I think a doctor ought to always put humanity above his own welfare. I have always said if I had a case and I did not understand it they could call in all the doctors they wanted to, I would call them in myself, instead of holding on to the case for the money and working it for all it is worth. The main object is to save the patient's life, and a human life is always worth more than a doctor's welfare. There is one asset above public health and that is character. Character is the most important asset humanity can have. After that public health. It is going to depend on education more than all other things put together. I have often been embarrassed to

have to practice in competition with a doctor that did not know a spot on the lungs from a spot on the retina, did not know what caused convulsions, did not take a test of the urine during pregnancy. This educational campaign is to be effective in the profession as well as the people. You can educate the people too much and have a better educated people than doctors. You had better educate the doctors.

The reason I am saying so much is I had a paper. The Transactions just got there the other day and I did not get it in time.

I think we ought to consider this from a personal stand. It is a question of State Medical Society, the State Board of Health, it is relieving the present, and so far as when anything turns up that is wrong we ought to have the courage to say so and tell the man to his face. The State Board of Health is doing some good work, they can do better, and I think they are going to do better but education is at the bottom of the whole thing, as well for the public as the profession. You cannot accomplish so much. It is a question of education and if you get right down to the bottom of it I am ready to shake hands with anybody that is doing health work like it ought to be done. I think we ought to lay aside the question of how much money but whether I can save his life. I am not as good about finding that out as the Mayos, but I generally can find out. The main question is to find out what is the matter and the next question is to get your money out.

There are two kinds of group medicine. There will be a conflict between group medicine and State medicine. It is our business to find out which side is right and which side is wrong and to take the right side.

Dr. T. C. Quickel, Gastonia: This criticism which I am offering is not directed toward the Secretary, toward his method of operating, or toward any imaginary or any real loss of fees, or toward his careful way of selecting the patients and having the operations done. In other words, I would not offer one word of criticism on those things. But, living in a district which is so fortunate as to be blessed with thirty-five community workers, energetic and earnest, this phase of club-work pushes up its head above the horizon. These community workers, anxious to benefit those for whom they are responsible, have come to me, and indeed to others, with the club idea. They say that they have eight or ten children who need to have their tonsils removed, and ask if we will not do it, and for how much we would do it. That is looming up as a result of the club name and the club idea. The formation of clubs, conducted in opposition to the way in which the

State Board of Health conduct theirs, to my mind brings up a real danger. Only about six weeks ago the Red Cross nurse in my county came to me and requested that I conduct a clinic fourteen miles from my office in a rural district. She wanted to know how much I would charge, or, in other words, for how little I would do the work. Individuals have also approached me with the question, "If I bring six or eight, for how much will you do the operations?" Now, unfortunately, there is in most communities some member of the profession who would be flattered by the invitation and attracted by the fee which he would thereby receive, and who would not consider the injustice and the danger that would be involved in going fourteen miles and operating on children, and returning to his office and leaving them under unfavorable circumstances. Now, this is not imaginary, but is showing itself as a real result of either the club name or the club idea, and I fear it may be anticipated as an unsatisfactory result of this club idea.

Dr. J. G. Murphy, Wilmington: I have held these tonsil clinics in two of the adjoining counties to mine, (New Hanover) and I will say in reply to the gentleman from Surry that it has not been my experience that it deprives the specialist of work. In justice to myself, I will say that I did not go into these clinics with a sordid, selfish, view. I went into the work to help the public school children who were unable to pay for operations, and I will say that the clinic was not abused in any counties which I have visited and in which I have held clinics. My office associates and I have held them in four or five counties, or possibly six.

There was one point spoken of by the gentleman, that people who can afford to pay attend these clinics. This question was brought up and discussed at length in the Eye, Ear, Nose and Throat Section, and a resolution was brought up and passed that those able to pay the full fee be requested to pay it.

As to the abuse of clinics, as long as I have known clinics they have been abused. I am a member of the board of directors of the largest hospital in the State, and we are constantly confronted with this question of the abuse of the clinic privilege. We know that we have been imposed upon tremendously, and we are endeavoring, through the efforts of the social workers to rid ourselves of this. We are investigating these cases, and we are not treating them as clinic patients or as full pay patients now. I believe that the old free clinic or full pay idea was wrong. I do not see the injustice of charging $12.50 to those people who are able to pay this and not able to pay $40 or $50 for going to a hospital. I do not see the injustice of

this. I believe that we are doing a real benefit to those people by allowing them to pay what they are able to pay, and not compelling them to pay what they are not able to pay. The clinic question has its difficulties. I recommended this long ago, that we charge more for those able to pay more. I am not in favor of making it an entirely free clinic. If we make it an absolutely free clinic we destroy the greatest usefulness it can have. People will not come to an absolutely free clinic, but they do come to a clinic and pay $12.50, which they understand covers the actual expenses. If you do not have that principle in it you kill one of the aims of the clinic. The fact that some come who are able to pay gives it prestige, and a prestige which we need.

Another point that we need to see is that it is not encroaching upon any one. The nurse from the State Board of Health goes around and examines these patients and determines who needs the operation. We get just about twenty per cent. It is not touching the edge of the amount of work there is to be done. It is educative, and my experience with it in the five or six counties in which I have been is that it is conducted in a way which is a benefit to those who are not able to pay, and that it educates the people to go to the specialist.

Dr. Rankin: The last point brought up here is absolutely vital. The resolution adopted by the Section on Eye, Ear, Nose and Throat, that patients be qualified by whether or not they are able to pay, imposes upon us a task without telling us how to do it.

I think the proper thing to do was to appoint a committee. We have the public on one side telling us to do this. The General Assembly passed a law requiring it. The Governor expects it. Mr. Brooks has turned over $50,000 for it. That is a pretty heavy responsibility to expect us to accept. If that is to be done, I do not want to come up to the Governor with the proposition myself. If you gentlemen want to go to the Governor and Mr. Brooks and say that it is wrong not to discriminate between those able to pay and those not able to pay, (indigent) I should like for you to appoint a committee to do it. The public say that they want it done, and the profession says that it must be done with certain modifications. You are bringing in the necessity of classifying the children in the public schools into classes, those able to pay and those not able to pay. When you tell us to do a thing as difficult as that, tell us how to do it.

Dr. I. W. Faison, Charlotte: This is a thing in which I have been very much interested and which I have studied pretty thoroughly.

I heartily and fully agree with what Dr. Rankin and the State Board of Health are doing in this work. It is the law of North Carolina, and he has to do it or quit. I am opposed to everything except what Dr. Rankin and the State Board of Health are doing. I have stood by Dr. Rankin all the way from Asheville to Greensboro, Gastonia and Charlotte, and I am still with him.

Dr. N. B. Adams, Murphy: I have been practicing medicine for twenty-six years, and I have not been considered mercenary. Now, the truth is that the public is demanding these clinics because the price has been cut. When a clinic has been in a county the people demand that they come back. Now, no one knows the people able to pay better than the family physician. My Society has gone on record as saying that we will help every child, not only in our county, but in adjoining counties, who is not able to pay the fee. But we are not willing to accept work at cut prices when the people are able to pay. We feel that we have the ethics of the American Medical Association behind us. I must say that I am not opposing the work of the State Board of Health; on the other hand I am for it. But this one thing I think is a mistake, and I think you will find it out. Not long ago a community nurse came to me and said that she thought she would have a clinic. She went over the list. Some of them were all right. I feel that we have a right and that we ought to exercise that right, and that the people will appreciate us more if we do exercise that right.

Dr. J. T. Burrus, High Point: I want to preface my remarks by saying that there is no man in North Carolina who has done more for public health and done more for the people of North Carolina than has Dr. W. S. Rankin. We endeavor to offer, Mr. Chairman, a word of constructive criticism. That is all we desire. The reason, perhaps, for that criticism is that in the profession there is this little remark and the other little remark made, largely because we do not know the State Board of Health and the State Board of Health does not know us. I believe that Dr. Rankin and his board want to do the right thing at the right time and in the right way. Whatever good is accomplished by this organization must be supported by the doctors of North Carolina as well as by the people of North Carolina. I see before me a man that has fought long and hard to accomplish wonderful things for this citizenship. The doctors of North Carolina were back of him, and the point is that the doctors of North Carolina must be back of any movement that the State Board of Health proposes to put over in order to make it most effective. Now, it seems to me

that the whole question is just that of you knowing me and me knowing you. I believe that if the State Board of Health would eliminate just a few fellows who come to a clinic in a Packard automobile and expect you to remove tonsils and adenoids for $12.50 per, the whole thing would be over. When a fellow does that he is reading your Health Bulletin and he is reading the daily newspaper, and he is informed. The Master laid down that final law: Accept Christ and be saved, or deny Him and go to Hell. God made every man a free agent for himself. When this State places before its citizens a knowledge of things and a knowledge of conditions as they arise, then it would seem to me that the State Board of Health has discharged its full duty and is not responsible for the ignorance of the man who should know. There is no man that knows better the financial condition of the people than does the family doctor, and it does seem to me that if this organization could co-operate with that family doctor in some way or other the whole thing would be solved, and that there would be nothing but the finest co-operative spirit shown not only in this work but in other things. I do not do this kind of work, so it does not encroach upon me in the least, and it is up to the North Carolina State Medical Society to encourage those men who are doing it and who have prepared themselves especially to do it, to make them better men and encourage them to do better work, and not swing over them a schedule of prices which lowers, in a way, their dignity at least.

I would write Dr. Jones over at Brown's Cross Roads. I would say: "My dear Dr. Jones: You are the finest fellow I ever knew. I wish that you would co-operate with that nurse and with your teachers in that particular locality and name those people in that locality who need the support of the State Board of Health and the organization that the State Board of Health has to present to you." When you do that, that fellow will send you the nicest kind of a letter back and will thank you for selecting him over the others in the community. We are all human.

This has happened, Mr. Chairman, and it is not right. It is injurious to the profession and it is calculated to destroy the morale of the medical profession in North Carolina.

A man drives up to a clinic in a big Packard car, we will say. He unloads three of his children. He has been told that his children need to have their tonsils and adenoids removed, and is told that it will cost $25 and perhaps a small hospital fee to have it done. He says that he will not do it, that he will wait for the clinic and have it done at $12.50 per. Now you know that a tonsil operation is not

a little operation. It is not an operation absolutely devoid of danger. It is not an operation that should be done carelessly and in the midst of undesirable surroundings. You can not pull them off at the cross roads and in the school house. We object to that man, who needs no information as to the right way, taking advantage of these clinics.

Dr. Charles O'H. Laughinghouse, Greenville: The hitch in Dr. Burrus's scheme is this. I do not believe that there is a physician in North Carolina who will willingly accept the responsibility of grading the people in his community, saying that Mr. A. is a pauper and that Mr. B. is a plutocrat. It is a responsibility too embarrassing for any physician to care to exercise in his own community.

The sum and substance of this proposition, as I see it, is this. Our State is eighty-two per cent rural. Eighty-two per cent of the school children are not closely allied with or in close proximity to hospitals. Our State is spending money to educate its children, and the money is being wasted because of the school child's physical disability. We have to straighten these children out, and we have to do it not only with the unanimous consent but through the co-operation of the medical men in the State. The State can not make any law or devise any plan that does not work a hardship upon somebody. There is a law against carrying concealed weapons. The general practitioner goes around here and there in the dead hours of the night, but, in obedience to the law, he does not carry a concealed weapon. It may be a hardship upon him, but he will subject himself to some risk in order to obey the law. The ways in which the tonsil clinics may affect us deleteriously are too small to consider. Dr. Rankin has already made it plain that he does not want to put the Board's operators into any county that can take care of itself. The only thing that he wants to do is to take care of the children whom the profession will not take care of. In the larger cities, where there is more than one specialist, it is up to the people and the profession to get diseased tonsils taken out. In case of failure, the Board of Health must get them out. I think that it is time for us to adopt this resolution and adopt it unanimously, and to realize that no law on earth is perfect. If it is distasteful to you as an individual, take it as the patient does a dose of castor oil. It is a little hard on his taste buds but it will do his whole system a lot of good even the taste buds themselves.

Dr. H. H. Briggs, Asheville: I have hesitated to speak on the subject of the tonsil and adenoid clinic, because I have as yet no better plan to propose than the one the State Board of Health has

adopted. Anything I might say as to my opinion and the profession's opinion of Dr. Rankin and the members of the State Board of Health personally would be redundant, and I shall vote, of course, for the resolution.

Two years ago I conducted in the western part of the State, several tonsil and adenoid clinics, operating on about two hundred and fifty cases. I stopped doing the work and wrote the State Board of Health my reasons. I assure you that I would have been then and would now be the last man to try to reflect upon the good work that is being attempted by the State Board of Health. There were fundamental principles, however, that caused me to take the stand that I took. When I was first approached in my office on the matter of holding clinics, the conversation between the nurse and myself occupied only a few minutes and the impression I got was that I was to conduct clinics in some of the remote mountain counties. As I had been doing this kind of work for twenty years I was glad of any opportunity to continue. The matter of remuneration did not enter my mind. I learned, however, during the first clinic, that I was to receive $100 a day. I believe the first clinic was in Madison County, and I am quite sure that everyone treated well deserved the privileges of the clinic. The next was at Brevard in Transylvania County, and quite a number of those who had been sent in by the nurses were people able to pay good fees, some of the parents, I am sure, were worth $100,000. I remonstrated, and was told by the nurses that the cases in question were taken in only in order to induce others to come along and that it would not happen again. The next clinic was at Andrews, in Cherokee County, and I must say that I have never seen in Western North Carolina as a class, any better people financially. There were the cream of that town and county. One man, who drove up in a Packard, wanted his child operated on "next." When told that his turn would soon come, said, "If you do not care to operate on my child, I can take him to New York or Philadelphia or Chicago, or anywhere I want to go." I said, "Well, you can take him," and he left.

When I returned to Asheville I wrote Dr. Cooper, stating my reasons for discontinuing the work. I also offered to conduct clinics in any western county for the deserving people without charge. The principal reason why I stopped doing the work was that the privilege was abused. We had our honored President over to the Buncombe County Society meeting a little later, when the Society went on record as advising those of us who had been doing this work to discontinue it. Dr. Way was then requested to present the State Board of

Health's side of the question. A heated two hours session followed. The one point especially discussed was that of allowing the wealthy man's child the privilege of the clinic, and after persistent insisting for an opinion on this matter, he offered the information that the State Board of Health could not legally keep that child from the clinic.

Now let us get down to the fundamental principle. Is it ethical or right to grant the rich this privilege? Can you legally keep the wealthy man's child from the clinic? If you cannot, then we are wasting time here.

Some of the rich are unscrupulous enough to apply and there is no fair-minded man here today who will admit that he should have this privilege. It is unfair for the State, unfair for him and establishing a precedent leading to socialism and eventually to bolshevism.

Dr. Rankin: The law applies to public school children, and the millionaire's child has the same right to apply for this service as to recite in the class on mathematics. You can amend the law of course. You can go before the General Assembly and propose an amendment to the law. If you object to this thing, take that course. You must understand that I am an officer of the law. If I stop doing this I shall be criticised by a large group of the public who will reach the Governor. The Governor will say, "Go on and do this." There is a possibility that Dr. Brooks may go on independently of the State Board of Health. But, under the law of North Carolina, we can not classify the public school children as those able to pay and those not able to pay.

Dr. Briggs: The criticisms coming in now are coming from the general practitioners, who claim that because one child is operated on for a nominal fee, the family think all the doctor's fees should be reduced accordingly, and the effect is to pauperize the people. But that is neither here nor there. I hope that we can get above the commercial aspect of this question. It seems to me that there are fundamental principles involved and we should decide whether the principles are right or wrong. Personally I do not believe that the State has a right to conduct a clinic to operate upon the millionaire's child at the rate of $12.50.

Dr. Rankin: What about educating, Doctor?

Dr. Briggs: Well, where are you going to stop? Are you going to treat typhoid eventually?

I would not do a thing against these clinics and I would hold other clinics for deserving children. I would go back and give a day a week for three months for free clinics to such.

In order to obviate the objectionable features of the State clinics and minister to the deserving, only, we have substituted in Asheville and Buncombe County a special clinic. We divided the people into three classes, those not able to pay anything, those able to pay a hospital fee only and those able to pay $12.50. Thus far we have treated fifty-three of the first class, who were able to pay nothing, or over fifty per cent of the total number treated.

There is one other point which I would like to mention. That is safety. I have never thus far lost a tonsil case, and while we examined every child's chest and heart, and, in many cases, the urine. I am sure that if I had gone on in the way we were going, sooner or later would have had a fatality. Among the two hundred fifty cases there were three hemorrhages, two slight, and one beginning twenty-four hours after operation, and the child had to be brought over a hundred miles into Asheville for treatment.

Dr. Way: I shall ask you to tell the Society what disposition was made of my suggestion that you might run a man for the General Assembly and secure the repeal of the law.

Dr. Briggs: We did have at the Asheville meeting mentioned a long heart to heart talk as to the State Board of Health's inability to carry out this suggestion, and Dr. Way mentioned politics as a remedy.

Another thing I want to say is that our Section of Ophthalmology and Otolaryngology appointed a committee of three to confer with the State Board of Health and report at the next annual meeting, the chairman of the Section as chairman of the committee. The committee appointed were Dr. Banner, Dr. Whisnant, and myself.

Dr. W. A. Bradsher, Roxboro: I have been a general practitioner for seventeen years. In a way, I know the needs of the public and what the public wants. Also, in a way, I can appreciate the feelings of our specialists. From this impartial viewpoint, I want to say that the general practitioners almost to a man endorse the policies of the State Board of Health along this line. Personally, I feel that it would be a calamity to have this work discontinued.

Dr. R. H. Lewis, Raleigh: I think that everyone will admit that this work has been a benefit to the children of the State, and you must bear in mind that you cannot administer a great program, with so many details, without bringing hardship in some direction. The State Board of Health have considered this proposition carefully from every point of view, and have decided that, on the whole, the present arrangement is the best of which they can think. While I admit the force of the criticisms that have been made, we must acknowledge the fact, which applies in all such cases, that it is impossible to administer them without bringing hardship to bear upon some one. Let us, therefore, take the broad and patriotic view of the matter.

Dr. W. A. Monroe, Sanford: As some one has said, most of the differences occurring between good men are due to misunderstanding and I think a good part of this has arisen from a misapprehension of the situation. The whole purpose of this work is to look after the health of the coming generation. The underlying principle being the development of a healthy new generation, not to take fees from anyone.

If a millionaire should be too stingy to pay for his child's treatment or too neglectful of the poor individual to have it done otherwise, I do not think we should withdraw the opportunity for such a child to use the clinic on account of the $12.50 fee. As to the loss of practice, my observation has been that the cases treated at the clinics serve as living advertisements, which bring more business to the specialists than they could possibly get otherwise.

I do not think this work should go on forever, nor do I believe it will be necessary, but I do hope the State Society will endorse it at this time.

Dr. L. D. Bryant, Sneads Ferry: There is just one point which has not been touched upon. That is the question of where the public funds come from. All are agreed, apparently, that the majority of these patients, certainly four cases out of every five, need to have the benefit of the public money of the State and of the great appropriation which the State Board of Health has made for this work. Now, who puts up the money? It comes from taxes, out of the public funds. Certainly, a millionaire bears his part of the burden. If he wants to wait and let his child have the benefit of the free clinic, I think we might let him do it. I heartily endorse every bit of the work that is being done, and I feel, as a doctor having a number of lives entrusted to my care, that I should be broad enough to put the welfare of humanity above the dollar.

Dr. C. V. Reynolds, Asheville: I had not intended to say anything, but I do want to say just a few words. I do not believe that there is a nose and throat man in the State of North Carolina or in any State who would refuse or fail or would not enjoy working night and day to relieve those who are suffering from tonsils and adenoids. But the specialists and the general practitioners do not differentiate between public health work and individualistic work. Right there, I think, is the secret. I believe, gentlemen, that it is up to you and up to me, whether or not Dr. Rankin comes into your midst or my midst and operates on the tonsils and adenoids. We are the custodians of our clientele. If we fail as specialists, if we fail as general practitioners, after the teachers have sent us the cards, and notified us that there are seven hundred or eight hundred children in our county that need the operation, if the family physician is notified and fails to do his duty, then to build up the general citizenship and build up mankind it is Dr. Rankin's duty to come in and do it, and I hope he will. You ask when this educational propaganda will stop. It will stop when you and I do our duty and not until then. I believe, gentlemen, in all seriousness, that the fault is in us. Let us keep Dr. Rankin out, by making it unnecessary for him to come.

We have a State law requiring all public school children to be examined, the defects classified, and the health department and family physician notified. Then it is up to the family physician and the specialists to remove those defects. If you do not, then Dr. Rankin should.

Dr. Rankin: You have struck a hot trail now. If you return the cards to us saying that a certain per cent have been treated we will stay out of the county and say "God bless you."

Dr. W. F. Cole, Greensboro: After listening to the discussion for some time, it occurred to me that it might be of interest to you if I were to tell you how we were handling crippled children in Guildford County.

When I first opened up the orthopædic department of our hospital, interested friends donated four beds for charity cases. I let this be known pretty generally, but it was not very long before I noted that the ones whom we wished to reach were not exhibiting very much interest.

I understood the situation, and by the aid of others we formed an organization known as a Crippled Children's Commission.

The object of this commission first is educational. The teaching is done at the clinics. Parents of crippled children are instructed how to handle the home treatment of the child, and they are also told what can be done and what is actually being done for the crippled child.

Second, to furnish free treatment in clinics and hospitals for the worthy poor.

The organization is composed of a secretary, treasurer, social service, transportation and chairman.

We are not disturbed by any one trying to impose on us, for the social service department knows the child's home environments, the ability of parents to pay, and the degree of intelligent care a child would have at home after operative treatment.

We are very fortunate in having at the head of this department a lady who does not believe in pauperizing any one, and I believe that this attitude helps greatly in keeping up the interest of parents.

The commission was taken over by Dr. Jones of the county health department.

The clinics are arranged for by the health department through the aid of the many health workers.

I can say to you that this is not experimental work, but it is practical and we are very enthusiastic over results obtained.

It seems to me if the State health department would develop children's clinics along the lines laid down in the larger towns that a good deal of confusion could be eliminated.

Just appoint the specialist from the different departments of medicine and surgery to serve a specified time, then the social service would do the rest.

I think that all the organizations pertaining to the health work of the State should be under the State health department, and I would be very glad indeed to see Dr. Rankin interest himself in our crippled children's commission. It should be State wide.

Dr. W. P. Holt, Duke: I hesitate to say anything about this, but I want to say that we cannot lose sight of the vast number of children for whom it is impossible to get this operation. I am in a county in which there are only two men who do tonsillectomy. I happen to be one of them. I would be so glad to see the clinic, to get rid of the vast number of children with bad throats, that I would be willing to turn over my hospital facilities to the man whom Dr. Rankin sends there and give him any aid I can. I think that if we look at the good that it will do we shall forget the objectionable features of the clinic.

A great many people take advantage everywhere of clinics, but that does not mean that they do not do good. The county school nurse turned in to me a few days ago a list of the children who needed to have this operation done. One of them I had been after for years. The child had large tonsils, was a mouth breather, and in bad shape. Two days later her father brought her to me, had the operation performed and payed the full fee.

Dr. K. C. Moore, Wilson: I think that Dr. Reynolds has hit the nail on the head. I would like to say this for Wilson. If Dr. Rankin will send us the names of the children who need operations, we will see that they get them. If the patients are not able to pay, I know that the nose and throat men will give their services and the hospitals will put the operating rooms within their reach.

Dr. Laughinghouse: I am going to take the liberty of expressing the sincere thanks of the State Board of Health for the interest and the time taken and the effort made by the State Medical Society in this Conjoint Session toward bringing about a solution of a problem which will be satisfactory to the State, to the doctors, to the Board of Health, to the Board of Education, and to the children of the State. I think this is the most inspiring, the most uplifting, and the most profitable Conjoint Session that it has ever been my privilege to attend.

Motion to approve the report of the committee unanimously adopted.

Adjourned.

REPORT

OF THE

BOARD OF MEDICAL EXAMINERS

OF THE

STATE OF NORTH CAROLINA, 1920

THE FOLLOWING APPLICANTS WERE LICENSED BY EXAMINATION

Banner, Allen C. ..... Mt. Airy
Barrus, Blanche J. ..... Clinton
Bennett, William H. ..... Mooresville
Bonner, O. Blanchard ..... Raleigh
Bristow, Chas. O. ..... Wagram
Brooks, Ralph E. ..... Camden, N. J.
Brown, Clarence E. ..... Salisbury
Butler, Leroy J. ..... Roseboro
Butt, Romulus B. ..... Bakersville
Carrington, Geo. L. ..... Durham
Davis, Ralph H. ..... Wilmington
Dawson, Wm. E. ..... Pittsburgh, Pa.
Devane, W. P. (C) ..... Bolton
Dewar, William B. ..... Raleigh
Dickie, James W. ..... Asheville
Ellis, Lyle G. ..... Grover
Fitzgerald, J. H. ..... Philadelphia, Pa.
Ford, Carl C. ..... Asheville
Formy-Duval, T. ..... Bolton
Gibbbon, James W. ..... Charlotte
Harper, Wm. T. ..... Wilmington
Harris, Cary F. ..... Henderson
Harvey, John, Jr. ..... Snow Hill
Hatcher, Martin A. ..... Calypso
Henry, T. Boice ..... Wadesboro
Hill, Lewis B. ..... Asheville
Hipp, Edward R. ..... Charlotte
Holloway, J. K. ..... Raleigh
Johnson, Chas. T. ..... New York City
Johnson, Geo. W. ..... Wallace
Johnson, V. E. ..... Rocky Mount
Jones, Carey C. ..... Apex
Jones, Z. B. V. ..... Swan Quarter
Keller, R. L. G. ..... Dallas, Texas
Kinlaw, Wm. B. ..... Rocky Mount

Lee, J. Marshall.....Hopewell, Va.
Lovelace, Thos. C.....Henrietta
Lyday, Russell O.....Brevard
Lyerly, James G.....Granite Quarry
Lynch, George B.....Fairview
McDuffie, Wm. N.....Biscoe
McKeithen, A. M.....Brevard
McKnight, Roy B.....Charlotte
Martin, Lester P.....Scranton, Pa.
Martin, Wm. F.....Leaksville
Mitchell, Zack P.....Windsor
Moore, Henry B.....Philadelphia, Pa.
Neal, Paul N.....Raleigh
O'Briant, A. L.....Camden, N. J.
Orr, Wm. J. B.....Currie
Owen, John F.....Mintz
Peterson, W. C., Jr.....Wilmington
Rankin, Richard B.....Kannapolis
Richardson, Jas. C.....Monroe
Rousseau, J. P.....Winston-Salem
Schoenheit, Ed. W.....Asheville
Shaver, William T.....Badin
Sparrow, Thos. D.....Washington
Thompson, Sam. A.....Paterson, N. J.
Vann, Herbert M.....Wake Forest
Watkins, Robert E.....Henderson
White, Robert A.....W. Asheville
Williams, Edward J.....Monroe
Williams, Jabez H.....Monroe
Woodard, Ethelbert D.....Arapahoe
Woodruff, Julian S.....Charlotte
Wooten, Floyd P.....Kinston
Wooten, William I.....Wilson
Young, William E. (C).....Raleigh
Gold, Ben.....Shelby

THE FOLLOWING APPLICANTS WERE LICENSED BY RECIPROCITY

Alexander, George.....Asheville
Baier, George T.....W. Asheville
Beath, Thomas.....Raleigh
Blair, James L.....Gastonia
Bost, Thomas C.....Charlotte
Brewer, James F.....Asheville
Butler, Humphrey.....Goldsboro
Conduff, Silas A.....Asbury
Crawford, Robert H.....Rutherfordton
Cripps, Percy C.....Buffalo, N. Y.
Darden, Oscar B.....Durham
Daughterty, John E.....Winston-Salem

Dudley, William B. ..... Winston-Salem
Everett, Jesse J. ..... Asheville
Fisher, Leslie C. ..... Roseboro
Hall, J. H. ..... Woodsdale
Holden, Earl C. ..... White Rock
Holding, Bruce ..... Portsmouth, Va.
Horton, Howard M. ..... Macon
Justis, Linwood H. ..... Littleton
Kehoe, Edward J. ..... Henderson
Larkin, Ernest W. ..... Charleston, S. C.
Lowry, James G. ..... Lowryville, S. C.
Lyon, Brockton R. ..... Greenville
McClees, Edward C. ..... Elm City
Montgomery, K. E. ..... Waynesville
Morgan, Grady A. ..... Stocksville
Morse, Irene M. ..... Southern Pines
Muench, Hugo ..... Windsor
Neal, Kemp P. ..... Raleigh
Pruitt, George C. ..... Monroe
Queen, Henry W. ..... Asheville
Richardson, Carl E. ..... Pinehurst
Russell, Albert T. ..... Wendell
Saniter, Ernest H. ..... Charlotte
Shuler, James E. ..... Durham
Small, Victor R. ..... Raleigh
Stirling, W. C., Jr. ..... Winston-Salem
Todd, Lester C. ..... Charlotte
Verdery, Wm. C. ..... Fayetteville
Wanstrom, Ruth C. ..... Asheville
Wilson, Harry H. ..... Black Mountain
Wilson, Roscoe J. (C) ..... Winston-Salem
Harden, Graham ..... Burlington

REPORT

OF THE

BOARD OF MEDICAL EXAMINERS

TO THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

This first annual report, following our election by this body just one year ago, is marked by an unusual circumstance that has never occurred in the previous history of the State Society—the Board has officially examined no applicants for license. This unusual situation has been occasioned by reason of the fact that the present Board was elected before the last examination period of the previous Board. This occurrence, while unique in the annals of medical society history, has proven to be a blessing in disguise. It has served as a means whereby the members of the Board of Examiners might familiarize themselves with the details of conducting the examinations and carrying on the work, before actually qualifying as a Board. This opportunity was afforded as a result of the generous invitation of the preceding Board to attend their last session and participate in their deliberations. As a result of this thoughtful and kind courtesy, every member of the present Board accepted and availed himself of the opportunity offered. Such a plan commends itself to the favorable consideration of every thinking man in the profession as being conducive to the maintenance of professional standards, customs, and usages and a continuation of the work without the usual break in routine. Such a plan continued in the future would serve as an unanswerable argument against any proposition looking to the election of a Board of which the terms of the individual members would expire each succeeding two years. On the other hand, a Board, whose members were elected and whose terms expired at the same time, is more likely to serve the public and profession satisfactorily. There is less danger of friction; there is a greater likelihood of a unity of purpose and policy.

In spite of the fact that the present Board has conducted no examinations, the intervening time has been fraught with events momentous in character. Early after our induction into office the Board was impressed with the ineffectiveness of the then existing medical prac-

tice laws with reference to those persons who deliberately chose to violate them. It was almost impossible to secure a conviction in the criminal courts under the Medical Practice Act. A study of our laws revealed that there existed a number of serious defects that served as loop-holes through which any offender might slip. Most of the important sections, and particularly the penalty sections, were survivals of the original 1859 act. The temporary license section, in its day a most beneficent section, was being used as a means of evading the general purpose of the Medical Practice Act. This section, by reason of the change in meeting of the Board, was obsolete. The cause for which a license might be rescinded was so indefinite as to be meaningless. The term "grossly immoral conduct" covered everything: was specific in nothing.

To add to the generally unsettled condition relative to our medical laws, the Board was informed, shortly after assuming its duties, that the osteopaths as an organization had made a determined and almost successful effort to secure legislation permitting them the unlimited right to practice medicine and surgery in the 1919 session of the General Assembly. The star of osteopathy was at the zenith of its glory and was now attempting to attach itself to the tail of the comet of scientific medicine in order that it might not end its career in infamous oblivion. This information came from Dr. H. A. Royster, the Secretary of the former Board, and to him is due the credit for blocking the legislation after it had been practically enacted into law. The profession owes him a debt of gratitude for his vigilance in the matter and his untiring efforts in behalf of the medical profession. In substantiation of the statement of Dr. Royster, the same bill was again presented by the osteopaths to the special session of the General Assembly in August last. Prompt action stopped the matter in committee, but only after due notice that the same bill would be again presented at the 1921 session of the General Assembly.

As a result of the efforts on the part of the osteopaths to encroach upon the domain of scientific medicine through the legislature, Dr. Royster, after consultation with a number of the profession and upon the advice and direction of the Board's attorney and certain prominent officials of the American Medical Association, had a bill prepared. By the terms of this bill many radical changes were proposed in our medical laws. The most important ones were: 1.—The creation of a combination Examining Board on the first two years for all applicants who desired a license to treat human ailments regardless of school or method followed. 2.—The placing of power to pass upon the preliminary educational qualifications, the conduct of the exami-

nations on the medical branches and the issuance of licenses in the Department of Education. 3.—The vesting of the power of the revocation of such license in the same department. This contemplated bill containing so many radical changes, coupled with the imperative need for the immediate remedying of the obvious defects in our Medical Practice Act, clearly indicated a consultation on the part of a considerable number of the profession. Accordingly a call was issued to fifty representative men for a conference in Raleigh on November 12th. Thirty-six men residing in all parts of the State responded. The object of the meeting was two-fold—to apprize the profession of the osteopathic situation and determine their attitude and to ascertain the sentiment of the profession with reference to the medical legislative program. The attitude with reference to osteopathic encroachment was unmistakably hostile. The weight of opinion favored the revision of the then existing medical laws in such a manner that all defects might be eliminated where apparent. A committee of five, consisting of Drs. A. A. Kent, E. B. Glenn, W. O. Spencer, J. T. J. Battle and A. J. Crowell, was appointed to meet with the Committee on Public Policy and Legislation of the State Society and the Legislative committee of the Board of Examiners at some early date. The support of each individual member of the Conference was pledged to any legislative program mapped out by the joint committees. The three committees met in Raleigh on December 3d with only two members absent out of a possible ten. The committees unanimously agreed upon certain amendments to the various sections of the Medical Practice Act.

The succeeding events that transpired are matters of common knowledge and will be touched upon in only a brief manner. Dr. Wm. M. Jones, Secretary of the Conference, mailed a rough draft of the proposed bill together with a letter of explanation to each member of the Conference. The office of the Secretary of the Examining Board communicated the result of the joint meeting to each county medical society; outlined in brief the proposed changes in the medical laws; called attention to the past and proposed efforts of the osteopaths; solicited the influence of the county society membership, individually and collectively, with their representatives in the General Assembly; and tendered the Secretary's office as a clearing-house for information as to the progress of the campaign throughout the State.

It is needless to more than mention the unfriendly attitude of the Lieutenant-Governor toward the medical profession of the State. His position as presiding officer of the Senate, with the power of appointment of the various committees, including the Health Committee.

made him a most dangerous factor against the success of our campaign. This state of affairs necessitated a visit to Raleigh by a committee at the very outset of the session of the General Assembly and before their organization had been completed. This mission was successful to an eminent degree.

Another visit was necessary in the last part of January in order to draft our bill in perfect shape for introduction. From that time on, it was absolutely essential for the committee to remain on the ground to superintend the course of the bill through the various channels required of all legislative propositions before becoming a part of the laws of the State. The progress of all legislation of a State-wide nature is of a necessity slow and halting. It seemed at the time that our legislation encountered more obstacles and delays than is usual in such cases. Since that period has passed and we are able to reflect upon the whole matter dispassionately, we are impressed with the expedition with which this bill of State-wide significance and application was passed. Our bill was the first of its kind to be enacted into law.

On the day following the introduction of our medical bill, the expected happened. The osteopaths introduced a bill that proposed to grant them the unlimited right to practice medicine and surgery. This bill was by special request referred to the Committee on Propositions and Grievances and made a special order for hearing on the following Tuesday, February 1st. A call to arms was issued and fifty or more loyal men of the profession responded. That day will always stand out prominently as one of the greatest days in the history of scientific medicine in this State. After hearing both sides of the question, the committee voted unanimously to report the measure unfavorably. Thus was scored the greatest victory in medical history of North Carolina in vindication of scientific medicine as opposed to the tenents of medical sects. Thus was won one-half of the program.

On the following day, the osteopaths, as was expected, centered their attack on our medical bill and succeeded in amending the section relating to them when the final vote was taken in the House. This amendment was carried as a result of the confusion incident to a perfect flood of amendments being offered one after another, until the members became mixed as to what they were really voting upon. The amended bill passed the House and was sent to the Senate. Due notice was given that an effort would be made to amend the bill back to its former verbage and to pass the Senate in that form. At a special hearing before the Senate committee, at which the osteopaths

appeared in a body, on February 11th, another victory against the osteopaths was scored. The committee voted to strike out the House amendment and to report the bill to the Senate as drafted. In the meantime, Attorney General Manning had expressed an official opinion that the amendment did not weaken our bill one whit from the original verbage and that in his opinion the osteopaths had no legal right under their law to either use drugs or do surgery. Considering that this was the very object sought, there appeared no objection to allowing the bill to go through the Senate as amended in the House.

We now come to the closing chapter in our medical legislation. A conference of medical men and legislators was being held in the Yarborough Hotel on the night following the action of the Senate committee in amending the bill back as originally drafted. Ways and means were being discussed as to handling the matter when it came to the floor of the Senate the next day. A knock was heard at the door and upon opening same we found an uninvited delegation of osteopathic officials, headed by their attorney. The delegation asked for a parley and proposed that if the bill was allowed to go through as amended, they on their part would offer no further opposition; that they would never in the future offer any osteopathic legislation; that they would revoke the license and prosecute all those osteopaths exceeding the privileges granted them by their law; and finally pledged that as a sect they would remain within the limits as prescribed by their then existing law. Having in mind the opinion of the Attorney General expressed just a few hours previous, and realizing that we were gaining concessions not sought at the outset of the campaign, we agreed to the proposition. By mutual consent, the Senate committee reported the bill to the Senate as it came from the House and on Monday night, February 14th, our bill passed that body and became a part of the laws of the State.

Thus was closed one of the bitterest fights ever staged in the General Assembly. The medical profession occupied the role of the victor and the osteopaths that of the vanquished. The closing scene is that of the osteopaths asking for terms and agreeing to pay an indemnity for what they conceive to be an advantage. Their campaign had ended in miserable failure and they had utterly failed to engraft themselves upon the medical profession and thereby enjoy all the peculiar privileges granted to the medical man by way of legislative enactment and without the requirement of having to qualify.

We cannot close this accounting of stewardship without paying a tribute to the unfaltering loyalty and hearty co-operation of the

medical profession in every nook and corner of the State. It was the work of "the boys back home" that made possible the results obtained in Raleigh. The medical profession as a body can attain any end it may desire when it makes up its mind to do so. It is suggested that all future legislation be handled through the county medical societies with some one point to serve as a clearing-house for reports coming from the various parts of the State. By this means it is possible to keep in touch with the progress of the entire situation. The past campaign has demonstrated the value of medical organization and vindicated its existence. Each and every man, with few exceptions, responded promptly and in a whole-hearted manner when called. To Dr. A. A. Kent, the Society owes an obligation difficult to repay. Freely and willingly he abandoned his own personal affairs and went to Raleigh where he practically resided until success had crowned our efforts. A report of this nature would be amiss in a failure to mention with the highest praise the names of Dr. J. Vance McGougan in the Senate and Dr. W. A. Monroe in the House. To them is due the credit of handling the bill in their respective bodies. They gave of their service unstintingly in the interest of the measure. Their personality contributed to a great extent to the facility with which the measure was made law. Dr. Monroe was very ably assisted in the House by such men as Doughton, Quickel, Bowie, Woltz, Parham, McBee, R. O. Everett, Gosney and others; while in the Senate Dr. McGougan was supported by Varser, Sams, Elmer Long, W. L. Long, Robinson, Hamilton, McCoin and others. It is impossible to even attempt to mention the name of each individual physician who rendered valuable aid in the campaign. An inadvertent omission might injure the feelings of the slighted one. Numbers of the professional brethren spent their time and money in the interest of the campaign, dropped their work and went to Raleigh at various times that they might lend their personal influence and presence to the attainment of the end sought. The unfaltering loyalty of these men demonstrated their devotion to the common cause. These men are known to you by their past acts along similar lines.

A last word and we are done. A word of explanation is in order with reference to the legislation proposing compulsory post graduate courses for the physicians of the State. This idea was conceived by Dr. W. A. Monroe and we feel sure that he was prompted by the purest of motives and a desire to elevate the general standard of professional excellence of the practitioners of the State. During the progress of the medical bill through the General Assembly, Dr. Monroe talked the matter over in a tentative manner with a number

of men. In the bustle and hurry incident to the passage of the bill, it was the general impression that the matter had been dropped. On Saturday, February 19th, a letter was received containing an invitation to attend a conference to be held in Raleigh on the following Monday to consider the advisability of the introduction of a bill of this nature. Telegrams were immediately dispatched to thirty representative men for the purpose of ascertaining the general sentiment as to the compulsory feature of the idea. There could be no possible objection to any other part of such a bill. This was done in order that intelligent action might be taken at the proper time. Twenty-eight men responded and only two expressed a favorable sentiment to the compulsory feature. At the conference it was agreed that if Dr. Monroe could induce the Appropriations Committee to add a rider appropriating $20,000 for this purpose to the budget, the details of a plan for post-graduate courses, under the direction of the University of North Carolina, would be worked out later.

Respectfully submitted,

THE BOARD OF MEDICAL EXAMINERS.

By K. P. B. Bonner, *Secretary.*

LICENSES GRANTED

JULY 9, 1921

At the recent meeting of the Board of Medical Examiners of the State of North Carolina, held in Raleigh, June 20th to 25th, 1921, one hundred and twenty-five applicants appeared. Of this number, eighty-two took the regular examinations. Of this eighty-two, twenty-six were two year students, fifty were licensed by examination, four were rejected and two withdrew. (One with permission and one without leave.) To Doctor William A. Kirksey of Morganton, goes the honor of making the highest grade, 95 5/7%. Doctor Ernest H. Alderman of Greensboro, was second with an average of 94% and Doctor Roy C. Mitchell of Mt. Airy, followed close behind with an average of 93 5/7%. The list of successful applicants on examination follows:

Name	*Address*	*Grade*
Alderman, Ernest Hamlin	Greensboro, N. C.	94
Ambler, Arthur C.	Asheville, N. C.	83 2/7
Ashworth, Osborne O.	Ashboro, N. C.	86 6/7
Aycock, Francis M.	Richmond, Va.	82 4/7
Baker, Maurice Edward	Lawndale, N. C.	86
Bell, George Erick	Wakefield, N. C.	80 6/7
Booth, James Henry Ray	Lemon Springs, N. C.	87
Britt, Tilman C.	Orrum, N. C.	88 5/7
Caviness, Verne S.	Philadelphia, Pa.	90 2/7
Cobb, Donnell B.	Goldsboro, N. C.	88 5/7
Collins, George	Charlotte, N. C.	87 1/7
Cooper, David Alexander	Henderson, N. C.	88 1/7
Corpening, Sherrill Gaither	Brevard, N. C.	90 1/7
DuBissette, Michael Edmund (C)	Smithfield, N. C.	91 1/7
Farthing, Fred Robert	Boone, N. C.	85 5/7
Fleetwood, Joseph Anderton	Jackson, N. C.	80
Flythe, Allen Grant	Jackson, N. C.	85 6/7
Folsom, Theodore Winslow	Asheville, N. C.	85 1/7
Frye, Glenn Raymer	Statesville, N. C.	90 3/7
Futrell, Walter Edward	Conway, N. C.	91 4/7
Geddie, Kenneth Baxter	Rose Hill, N. C.	90 1/7
Harney, James Norman	Plymouth, N. C.	88 2/7
Kirksey, James J.	Morganton, N. C.	89 2/7
Kirksey, William Albert	Morganton, N. C.	95 5/7
Lambert, Critz Fred	Philadelphia, Pa.	87 2/7
Lambert, Waite Leonidas	Moffitt, N. C.	87
Lane, Bessie Evans	Auburn, N. C.	87 3/7
Lane, Martin Edgar	Fountain, N. C.	87 1/7
Lutterloh, Isaac Hayden	Sanford, N. C.	90 2/7

Millender, Charles White	Asheville, N. C.	86 4/7
Mitchell, Roy Colonel	Mt. Airy, N. C.	93 5/7
McCutchen, William Benson	Rougemont, N. C.	87 5/7
Nolan, James O.	Lawndale, N. C.	87
Nowell, Jr., Stephen Cannon	Winfall, N. C.	89 2/7
Parks, Hugh	Harmony, N. C.	85 4/7
Perry, Isabelle Hester	Henderson, N. C.	90 4/7
Perry, Robert Edward	Mt. Olive, N. C.	86 6/7
Pittman, Malory Alfred	Aulander, N. C.	86 4/7
Robbins, Fred Ross	Lenoir, N. C.	91 1/7
Smith, Anderson Jones	Black Creek, N. C.	90
Smith, Franklin Colton	Louisburg, N. C.	89 6/7
Smith, Joseph Elmer	Richmond, Va.	85 2/7
Sowers, Jacob Long	Linwood, N. C.	88 2/7
Tally, Bailey T.	Angier, N. C.	87 1/7
Taylor, Shohone R.	Kinston, N. C.	84 6/7
Teague, Samuel Edward	Sanford, N. C.	83 4/7
Thorp, Adam T.	Rocky Mount, N. C.	84 5/7
Vann, Elizabeth Rogers	Raleigh, N. C.	90 1/7
Whitehead, Seba L.	Scotland Neck, N. C.	81 3/7
Wilson, William Gilliam, Jr.	Wilson's Mills, N. C.	90 6/7

Forty-two made application for license by reciprocity. Of this number, thirty-two were accepted, five failed to appear before the Board and five were rejected. The list of those granted certificate through reciprocity follows:

Name	*Address*	*Certified by*
Ashby, Julian W.	Raleigh, N. C.	Virginia
Bell, Felix Orton	Reidsville, Ga.	Georgia
Denton, Aulsey L.	Castalia, N. C.	Virginia
Dyer, John Wesley	High Point, N. C.	Kentucky
Edwards, Carlyle J.	Cary, N. C.	U. S. Navy
Evans, John E.	Wilmington, N. C.	Maryland
Ewing, Ephraim M.	Asheville, N. C.	Louisiana
Freeman, Jere David	Wilmington, N. C.	Virginia
Gage, Lucius Gaston	Charlotte, N. C.	Virginia
Gordon, Patrick L.	Charleston, W. Va.	W. Virginia
Gore, Thomas Lee	Wilmington, N. C.	U. S. Army
Green, Berryman, Jr.	Alexandria, Va.	Virginia
Hasley, Clyde Knapp	Charlotte, N. C.	Michigan
Holt, Erastus Eugene	Portland, Me.	Maine
Hoyt-Stevens, J. E.	Raleigh, N. C.	New Hampshire
Ivey, Robert Robbins	Biltmore, N. C.	Alabama
King, Edward	Asheville, N. C.	Massachusetts
Locke, Eva M.	Lexington, Ky.	New Hampshire
Long, Roy Cleveland	Asheville, N. C.	Alabama
Morgan, Burniee E.	Asheville, N. C.	Tennessee
Nance, Charles L.	Peachland, N. C.	Virginia

Name	*Address*	*Certified by*
Norburn, Charles S.	Philadelphia, Pa.	U. S. Navy
Phillips, Charles	Wake Forest, N. C.	Virginia
Poate, Ernest Marsh	Southern Pines, N. C.	New York
Randall, George M.	Linville, N. C.	Florida
Redfern, Thomas C.	Winston-Salem, N. C.	New York
Stoner, Ira James	West Durham, N. C.	Michigan
Stringfellow, James L.	Waynesville, N. C.	Virginia
Thompson, Henry P. P.	Highlands, N. C.	Virginia
Ward, John LaBruce	Columbia, S. C.	South Carolina
Weathers, Bahnson	Wilmington, N. C.	Missouri
Wysong, Homer C.	Wilmington, N. C.	Tennessee

There was one applicant for limited license:

W. E. Whittington, Reddies River, N. C., was granted a license, the territory of which was limited to Union, Reddies River and Mulberry Townships in Wilkes County, N. C.

EXAMINATION IN ANATOMY

DR. L. A. CROWELL

1. Give origin of a Dermoid cyst of the ovary.
2. Name the muscles of the Orbital Region and give their nerve supply.
3. Describe the circle of Willis.
4. Describe the Portal Circulation.
5. Name the nerve of expression, give its deep origin and Foramen of exit.
6. Describe the Thoracic Duct.
7. Describe the Gasserian Ganglion.
8. Bound Scarpa's triangle and give name and relation of the structures that pass through it.
9. Describe the Jugular Foramen, and name the structures that pass through it.
10. Name structures and in order that would be cut in and amputation at junction of middle and lower third of the thigh.

EXAMINATION IN SURGERY

DR. L. N. GLENN

1. Upon what general principles has modern surgery attained its present status?
2. State some conditions which might require intravenous saline solution—which might require transfusion,, and describe technique of each operation.
3. Differentiate acute intestinal obstruction from other acute abdominal conditions and give surgical treatment of same.
4. Give symptoms, diagnosis, and operative treatment of strangulated inguinal hernia and of hydrocele.
5. Treat the following fractures: Compound of middle of femur, fracture of surgical neck of humerus with sub-glenoid dislocation of head.
6. Reduce the following dislocations: Head of femur, lower jaw, shoulder.

7. Discuss the surgical significance of jaundice.

8. Define ankylosis, angioma, exostosis, pseudarthrosis, pyonephrosis, phlebotomy, cholecystenterostomy, paracentesis, nævus, oophorectomy.

9. State some conditions which would justify or require an abdominal colostomy and describe method of doing the operation.

10. Describe operation for talipes equino varus and name other varieties of this condition.

EXAMINATION IN HISTOLOGY, PATHOLOGY AND BACTERIOLOGY

DR. C. A. SHORE

1. Discuss briefly the pathology and bacteriology of epidemic influenza.

2. Discuss wound healing.

3. Discuss the criteria of malignancy of tumors; (a) Name three malignant tumors giving sites. (b) Name three benign tumors giving sites.

4. Give an outline of the method of the Wassermann test for syphilis.

5. Given a laboratory culture of an organism growing on agar agar, how would you distinguish between typhoid, paratyphoid A, paratyphoid B, and Bacillus coli?

6. Describe the bacteriology of Vincent's Angina.

7. Discuss briefly the method of infection of: (a) Two diseases caused by protozoa. (b) Two diseases caused by filtrable virus.

8. Name diseases against which you would recommend prophylactic vaccination.

9. Name diseases against which you would recommend curative sera.

10. What is the difference between active and passive immunity?

EXAMINATION IN OBSTETRICS, GYNECOLOGY AND PEDIATRICS

DR. K. P. B. BONNER

1. Define: (a) Obstetrics. (b) Gynecology. (c) Pediatrics.

2. What are the diameters of the normal female pelvis at the superior strait expressed in centimeters? What are the causes for variations from the normal measurements? What is the effect of these variations from the normal upon the act of normal labor?

3. Tell in their usual sequence the symptoms and signs of normal pregnancy, both subjective and objective.

4. How would you treat a central placenta prævia associated with a transverse position of the unborn child and associated with severe hemorrhage?

5. Describe: (a) Precocious menstruation. (b) Delayed menstruation. (c) Menorrhagia. (d) Metrorrhagia. (e) Amenorrhea. (f) Vicarious menstruation. (g) Dysmenorrhea. (h) Climacteric.

6. Describe in detail the secondary repair of a median perineal laceration involving the sphincter ani muscles.

7. Give the etiology, symptoms, diagnosis and treatment of carcinoma of the uterus.

8. Give the differential diagnosis between cholera infantum, acute ileo-colitis and chronic ileo-colitis.

9. Outline a plan for the successful treatment of a case of enuresis in a child five years of age.

10. Name the incubation period of: (a) Diphtheria. (b) Scarlet fever. (c) Pertussis. (d) Measles. (e) Varicella (f) Epidemic parotitis.

NOTE—Each question will be counted as eight points on the total. The practical examination will have a value of twenty points.

EXAMINATION IN CHEMISTRY, PHYSIOLOGY AND HYGIENE

DR. WM. M. JONES

1. Define: Inorganic, organic, acid, base, salt, efflorescence, deliquesence, and katalytic action.

2. To what is temporary and permanent hardness of water due, and how may temporary hardness be removed? How is ethyl ether made and what are its properties??

3. What are the Halogens, and what do they form when combined with other Elements? What are Alkaloids, and to what chemical group or groups do they belong? Name the liquid volatile ones.

4. Define enzymes, and give their general properties. What is a hormone and chalone? Are all proteins of equal value as food? Why?

5. What are the functions of the leucocytes? Are leucocytosis and leucopenia both always pathelogical?

6. What are vitamines, and where are they found?

7. Trace briefly the fifth cranial nerve from its deep origin to its final distribution, and give its general functions.

The following to be answered by those only who are taking final examinations.

8. Define the terms Hygiene and Sanitation. Name the common acute communicable diseases, and by what means each may be communicated.

9. Name the different sources of drinking water, and tell how each may be safeguarded. In estimating a city's water supply, what should be the minimum for each inhabitant per diem?

10. How may night-soil of small towns and rural communities be disposed of so as to be of little danger? What is a septic tank and what is the theory of its operation?

EXAMINATION IN PRACTICE OF MEDICINE

DR. WILLIAM P. HOLT

1. Differentiate typhoid fever from æstivo autumnal fever, first week.

2. Name types of malarial fever. (a) Cause of each. (b) Give briefly treatment of each. (c) Why is it so important each case should be treated until cured?

3. Give synonyms and early symptoms of tabes dorsalis, etiology, and treatment.

4. (1) Give symptoms of Pernicious Anemia. (a) Blood picture. (b) Prognosis. (c) Treatment. (2) What is found in blood of Leukemia that is characteristic that is not found in normal blood?

5. Give exciting cause, diagnosis and treatment of Cerebro-spinal Meningitis.

6. Define the following signs and name condition in which each is found: Kernig's sign, Romburg's sign, Dalrymple's sign, Skoda's sign, Von Græfe's sign.

7. Give differential diagnosis between Membranous Croup and Spasmodic Croup, and give treatment of each.

8. What is Bell's Palsy? Where is lesion found, symptoms and treatment?
9. Discuss briefly Gastric Ulcer and give treatment.
10. Name some indications and contra-indications of Gastric Lavage.

EXAMINATION IN MATERIA MEDICA, THERAPEUTICS AND PHARMACOLOGY

DR. J. G. MURPHY

1. Give the principal alkaloid of belladonna and indications for its use; also dose.
2. What is incompatibility in medicine, and what are the different kinds of incompatibles? Give an example of each.
3. Give a brief description of some conditions in which serum therapy has proved successful.
4. State the effect on the circulation of medicinal dose of Nitro-Glycerine; Digitalis; and Strychnia.
5. Explain the effect of Acetanilid and the cyanosis it sometimes produces; dose.
6. Name three (3) useful emetics. Give dose.
7. Mention four (4) preparations of opium and two alkaloids; dose of each; its physiological effect; symptoms and treatment of toxic dose.
8. What remedies are useful in cerebrial anemia and in cerebral hyperemia? Give doses and methods of administration.
9. Give the symptoms and treatment of strychnin-poisoning.
10. Write a prescription for acute conjunctivitis. What is a mydriatic? Name two or more. What is a myotic? Name two or more.

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Hill, Wm. Isaac	Albemarle
Hill, W. Lee	Lexington, R 4
Hines, E. R.	Rocky Mount
Hinnant, Milford	Micro
Hipp, Edw. R.	Charlotte
Hipps, A. G. T.	Asheville
Hobgood, J. E.	Thomasville

Name	*Address*
*Hoeutt, Battle A.	Clayton
Hodges, Joseph M.	Cranberry
Hodgin, H. H.	Red Springs
Hoggard, Wm. Alden	Woodville
Holden, E. C.	White Rock
Hollar, O. L.	Hickory
Hollingsworth, Edward M.	Mt. Airy
*Hollingsworth, E. T.	Clinton
Hollingsworth, Robert E.	Mt. Airy
*Holloway, O. W.	Durham
Holloway, Robert Lee	W. Durham
Hollyday, W. M.	Asheville
Holmes, A. B.	Council
Holt, D. W.	Greensboro (Rev. Sta.)
Holt, R. D.	Cherokee
Holt, T. J.	Warrenton
*Holt, Wm. P.	Duke
Holt, Wm. T.	McLeansville
Honnet, Joseph H.	Wilmington
Hood, J. Sidney	Kings Mountain
*Hooks, Thel.	Smithfield
Hooper, D. D.	Sylva
Hooper, Joseph W.	Wilmington
Hoover, C. H.	Crouse
Horsley, H. T.	Franklin
Horton, Howard M.	Macon
*Horton, M. C.	Raleigh
*Horton, W. C.	Raleigh
Horton, W. P.	N. Wilkesboro
Houck, Albert F.	Lenoir
Houser, E. A.	Shelby
Houser, O. J.	Charlotte
Houser, W. H.	Cherryville
Hovis, L. W.	Charlotte
Howe, Wm. B. W., Jr.	Hendersonville
Howell, W. L.	Ellerbe, R. F. D.
Hubbard, Charles C.	Farmer
Hughes, Francis W.	New Bern
Hunnicut, Wm. J.	Asheville
Hunsucker, Charles L.	Hickory
Hunt, J. F.	Belwood
Hunter, J. P.	Cary
Hunter, J. V.	Asheboro
Hunter, L. W. (Hon.)	Charlotte, R. 1
Hunter, Myers	Charlotte
Hunter, N. C.	Laurinburg
Hunter, M. C.	Huntersville
Hunter, W. B.	Gastonia
*Hurdle, S. W.	Winston-Salem
Huston, John Walter	Asheville
Hutchins, E. M.	North Wilkesboro
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Irwin, Hammer	Eureka
*Irwin, J. R. (Hon.)	Charlotte
Ivey, H. B.	Goldsboro
Ivey, R. R.	Biltmore (U. S. P. H. S.)
Izlar, H. L.	Winston-Salem
*Jackson, Walter Leo	High Point
Jacocks, W. P.	Columbia, Ceylon
*James, Albert	Hamlet
*James, F. P.	Laurinburg
*James, W. D.	Hamlet
Janney, J. H.	Washington
*Jarboe, Parron	Greensboro
Jarman, F. G.	Roanoke Rapids
Jenkins, Charles L.	Raleigh
Jenkins, John H.	Gastonia
Jennings, R. G.	Winston-Salem
Jerome, James R.	Wingate
Jett, Samuel G.	Reidsville
Jewett, Robert D.	Wilmington
*John, Peter	Laurinburg
Johnson, B. C.	Bunn
*Johnson, Floyd	Cerro Gorda
Johnson, Geo. W.	Wilmington
Johnson, Henry H.	Louisburg
Johnson, John B.	Old Fort
Johnson, J. G.	Charlotte
Johnson, Lee	Gastonia
Johnson, Norman M.	Durham
Johnson, Robert Wade	Apex
Johnson, Thomas C.	Lumberton
Johnson, W. A.	Reidsville, R. F. D.
*Johnson, Wingate M.	Winston-Salem
*Johnson, W. C.	Canton
Johnson, R. H.	Wilson
*Johnston, W. W.	Winston-Salem
Jonas, John F.	Marion
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Jones, Beverley	Winston-Salem
Jones, Clara E.	Goldsboro
Jones, C. M.	Grimesland
Jones, E. E.	Elm City

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Jones, J. Walter	Boone
Jones, Thomas J.	Lansing
*Jones, W. M., Jr.	Greensboro
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*Jordan, Wm. S.	Fayetteville
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Juat, Francis	Raeford
*Judd, Eugene C.	Raleigh
Judd, James M.	Cardenas
*Julian, Charles A.	Thomasville
Jurney, Peter Clayton	Turnersburg
Justice, L. H.	Littleton
*Justice, Z. K.	Davidson
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Keiger, O. R.	Winston-Salem
Kendrick, R. L.	Elizabeth City
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*Kennedy, John P.	Charlotte
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Kernodle, Charles	Elon College
*Kerns, T. C.	Durham
Kerr, John D.	Clinton
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Killian, P. B.	Hayesville
Killian, R. B.	Lincolnton
King, Parks M.	Charlotte
King, Richard M.	Concord
Kinsman, H. F.	Hamlet
Kirby, Guy S.	Marion
Kirk, W. R.	Hendersonville
Kirkman, T. A.	Siler City
Kiser, W. C.	Reepsville
Klutz, A. F.	Maiden
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Klutz, P. J.	Maiden
Knight, J. B. H. (Hon.)	Williamston
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Knowles, L. M.	Rocky Mount
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Lackey, F. H.	Fallston
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Lancaster, R. M.	Dobson
Landen, Jefferson F.	Chinquapin
Lane, John L.	Rocky Mount
*Lane, P. P.	Wilson
Lapham, Mary E.	Highlands
*Large, H. Lee	Rocky Mount
*Lassiter, C. L.	Fremont
Lassiter, H. G.	Weldon
*Laton, James F.	Albemarle
*Lattimore, E. B.	Shelby
*Laughinghouse, Chas. O'H.	Greenville
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*Lawrence, Chas S.	Winston-Salem
Lawson, R. B.	Chapel Hill
*Ledbetter, James McQ.	Rockingham
Lee, Lawrence Victor	Lattimore
Lee, R. E.	Lincolnton
Leggett, Kenelm	Hobgood
Leggett, V. W.	Hobgood
Leinbach, Robert F.	Charlotte
Legwin, John B.	Wilmington
*Lentz, C. M.	Albemarle
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Lewis, H. W. (Hon.)	Jackson
*Lewis, Richard H. (Hon.)	Raleigh
*Lilly, James M.	Fayetteville
Linney, R. Z.	Charlotte
*Linville, Aaron Y.	Winston-Salem
Lister, E. W.	Weeksville
Lister, J. L.	Jackson
Little, E. E.	Statesville
*Livingston, Everett Alex	Gibson
Lloyd, B. B.	Chapel Hill
*Lockett, Everett A.	Winston-Salem
Loftin, P. B.	Beaufort
Long, Benj. L.	Glen Alpine
Long, Benj. L. (Hon.)	Hamilton
Long, D. T.	Hurdle Mills
*Long, E. F.	Raleigh
Long, Edgar M.	Hamilton
Long, Fred Y.	Catawba
Long, Glenn	Newton
Long, H. F.	Statesville
*Long, John Wesley (Hon.)	Greensboro
Long, T. W. M.	Roanoke Rapids
*Long, Vann McKee	Winston-Salem
Long, Walter T.	Roxboro
Looney, J. J. W.	Rocky Mount

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Lord, Margery J.	Montreat
Lott, H. S.	Winston-Salem
Love, Bedford E.	Roxboro
Love, W. J. (Hon.)	Wilmington
Love, William M.	Unionville
Lovelace, T. C.	Henrietta
Lowery, John R.	Raleigh
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Lyday, C. E.	Gastonia
Lyle, S. H.	Franklin
Lynch, J. M.	Asheville
Lyon, B. R.	Greensboro
Lyon, E. H.	Bahama
Lyons, Henry Wise	Windsor
McAdams, C. R.	Belmont
McBrayer, L. B.	Sanatorium
McBrayer, R. A.	Sanatorium
McBryde, M. H.	Reidsville
McCain, Hugh W.	High Point
McCain, P. P.	Sanatorium
McCain, Wm. R.	Waxhaw
McCampbell, John	Morganton
McCanless, Wm. V.	Danbury
McClees, Ed. C.	Elm City
McClees, Jas. E.	Oriental
McClelland, J. O.	Maxton
McCombs, C. J.	Gastonia
McCotter, St. Elmo	Bayboro
McCoy, T. M.	Mt. Holly
McCracken, C. M.	Fairview
McCracken, J. R.	Waynesville
McCuiston, A. M.	Richlands
McCullers, J. L.	McCullers
McDade, B. B.	R. F. D. 1, Corbett
McDaniel, L. E.	Lasker
McDonald, A. A.	Jackson Springs
McDonald, A. D. (Hon.)	Wilmington
McDuffie, W. N.	Hemp
McElwee, R. S.	Statesville
McFayden, O. L.	Fayetteville
McFayden, Paul R.	Concord
McGee, J. W.	Raleigh
McGehee, J. W.	Reidsville
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McIntosh, L. C.	Henderson
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*McKay, H. W.	Charlotte
*McKay, J. F.	Buies Creek
*McKay, W. P.	Fayetteville
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McKenzie, B. W.	Salisbury
McKenzie, W. W.	Salisbury
*McKethan, D. G.	Fayetteville
*McKethan, J. A.	Fayetteville
McLaughlin, C. S.	Charlotte
McLaughlin, J. E.	Statesville
McLean, Allen	Wagram
McLean, C. E.	Gastonia
McLean, J. W.	Godwin
McLean, Peter	Laurinburg
McLemore, G. A.	R. F. D., Clayton
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*McLeod, G. M.	Carthage
McManus, W. L.	Bonlee
McMillan, B. F. (Hon.)	Red Springs
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McMillan, J. D. (Hon.)	Edenton
McMillan, J. L. (Hon.)	Red Springs
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McMillan, Roscoe D.	Red Springs
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McNeill, J. W. (Hon.)	Fayetteville
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McPherson, R. G.	Saxapahaw
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McRae, J. D.	Asheville
*McConnell, J. W.	Davidson
*MacNider, Wm. DeB.	Chapel Hill
Macon, G. H.	Warrenton
Macon, P. J.	Warrenton
MacPherson, G. S.	Asheville
Mallett, E. P.	Hendersonville
*Malone, J. E.	Louisburg
Malloy, S. A.	Yanceyville
Maness, J. M.	Ellerbe
*Mangum, C. P.	Kinston
*Mann, I. T.	High Point
Mann, S. M.	Moyock
*Manning, I. H.	Chapel Hill
*Manning, J. M.	Durham
Marlow, W. A.	Walstonburg

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Mariner, N. B.	Belhaven
*Marr, M. W.	Pinehurst
Marriott, H. B.	Battleboro
Martin, J. A.	Lumberton
Martin, J. F.	Benson
Martin, J. H.	R. F. D., Battleboro
Martin, J. W.	Roanoke Rapids
Martin, L. P.	Gastonia
*Martin, Moir S.	Mt. Airy
Martin, S. L.	Leaksville
Martin, W. C.	Mocksville
Martin, W. J.	Davidson
Matheson, J. P.	Charlotte
*Matthews, J. O.	Clinton
*Matthews, M. L.	Sanford
Matthews, T. A.	Castalia
Matthews, V. M.	Charlotte
Matthews, Wm. W.	Spray
Maxwell, C. S.	Beaufort
Maxwell, J. F.	Pink Hill
Meadows, Elijah B.	Oxford
Meadows, W. J.	Greensboro
Mebane, W. C.	Wilmington
Melvin, W. C.	Linden
Menzies, H. C.	Hickory
Meriwether, B. M.	Asheville
Meroney, B. B.	Murphy
Merritt, J. H.	R. F. D. 2, Woodsdale
*Michaux, E. R.	Greensboro
Miles, May S.	Greensboro
Miller, J. F.	Wilmington
Miller, R. B.	Goldsboro
Miller, R. C.	Mayworth
Milliken, J. S.	Pittsboro
Mills, C. H. C.	Charlotte
Mimms, C. W.	Winston-Salem
Minor, C. L.	Asheville
Misenheimer, C. A. (Hon.)	Charlotte
Mitchell, G. W.	Wilson
Mitchell, J. H.	Ahoskie
Mitchell, P. H.	Ahoskie
Mitchell, W. F.	Shelby
Mitchell, Z. P.	Colerain
Mitchener, J. S.	Edenton
*Mock, F. L.	R 3, Lexington
Monk, H. D.	Trenton
Monk, H. L.	Salisbury
*Monroe, J. P.	Sanford
*Monroe, W. A. (Hon.)	Sanford
Mongomery, Harry M.	Burlington
Montgomery, John C.	Charlotte
Montgomery, K. E.	Waynesville
Moore, Alexander W.	Charlotte
Moore, B. D.	Mt. Holly
Moore, Baxter S.	Charlotte
Moore, Chas. E. (Hon.)	Wilson
Moore, Charles E.	Greensboro
Moore, D. Bain	Badin
*Moore, Edwin G. (Hon.)	Elm City
Moore, Julian A.	Wilmington
Moore, Joseph N.	Marshall
*Moore, K. C.	Wilson
*Moore, Oren	Charlotte
Moore, R. A.	Winston-Salem
Moore, T. V.	Acme
*Moore, Wm. James	Asheboro
*Moore, Wm. H.	Wilmington
Moore, W. B.	Summerfield
*Moorfield, R H.	R. F. D. 1, Westfield
Morrill, D. S.	Farmville
Morrill, Jenness	Falkland
Morris, E. R.	Asheville
Morris, George B.	Mt. Olive
*Morris, Joseph A.	R. F. D. Oxford
Morrow, Wm. C.	Andrews
Morse, Lucius B.	Hendersonville
Morton, N. D.	Norlina
Moseley, Charles W.	Greensboro
Moseley, H. P.	Farmville
Moseley, Z. V.	Kinston
Moser, W. D.	Burlington
*Mudgett, W. C.	Southern Pines
*Munroe, J. P. (Hon.)	Charlotte
Munt, H. F.	Winston-Salem
*Murphy, John G.	Wilmington
Murphy, W. B.	Snow Hill
Myers, Alonzo	Charlotte
*Myers, John Q.	Charlotte
*Nalle, B. C.	Charlotte
*Nance, George B.	Monroe
*Nash, J. Fred	St. Pauls
*Neal, John W.	Monroe
*Neal, Kemp P.	Raleigh
Neal, Paul N.	Raleigh
Nelson, Robert J.	Robersonville
Newbern, J. M.	Jarvisburg
Newby, G. E.	Hertford

Name	*Address*
Newell, H. A.	Henderson
Newell, J. O.	Louisburg
Newell, Leone B.	Charlotte
Newman, Harold H.	Salisbury
Nichols, Alvon A.	Sylva
Nichols, Asbury S.	Sylva
Nichols, Austin F.	Roxboro
Nichols, Rhodes E.	Durham
Nicholson, B. M.	Enfield
Nicholson, C. R.	Harmony
Nicholson, John Lawrence	Washington
Nicholson, N. G., Jr.	Mt. Gilead
Nicholson, Sam T.	Washington
Nisbet, Heath	Charlotte
Nisbet, Walter O.	Charlotte
Noble, R. J. (Hon.)	Selma
Noble, R. P.	Raleigh
Nobles, Jos. E. (Hon.)	Greenville
Noell, R. H.	Rocky Mount
Norfleet, Edgar Powell	Roxobel
Norfleet, L. E.	Tarboro
Norman, Geo. W.	Pomona
Norman, J. S.	Boardman
Norment, Thos A.	Lumberton
Norris, Henry	Rutherfordton
*Northington, J. M.	Charlotte
Oates, George	Grover
Ogburn, H. H.	Greensboro
*Olive, P. W.	Wade
*Olive, Wm. Wade	Durham
Oliver, A. S.	Benson
Orr, Charles C.	Asheville
Orr, C. V.	Andrews
Orr, Peter B.	Asheville
Outland, C. L.	Tarboro
Pace, K. B.	Greenville
Packard, G. H.	White Rock
*Paddison, Jno. Robt. Jr.	Kernersville
Palmer, B. H.	Shelby
Palmer, Horace	Hollister
*Palmer, R. W.	Gulf
Parker, Clifton G.	Woodland
Parker, C. P.	Seaboard
Parker, F. M.	Enfield
Parker, G. E.	Benson
Parker, J. R.	Clinton
Parker, John Rainey	Burlington
Parker, J. R.	Wilmington
*Parker, O. L.	Clinton
Parker, Paul G.	Jackson
Parker, Walter R.	Woodland
Parris, O. J.	Swepsonville
Parrott, Albert DeK.	Kinston
*Parrott, James M.	Kinston
Parrott, M. C.	Kinston
Parrott, Wm. T.	Kinston
*Parsons, W. H.	Charlotte
Patchin, D. F.	Rosemary
Pate, F. J.	Greensboro
*Pate, James G.	Gibson
*Patrick, Geo. R. Jr.	Bessmer City
Patrick, L. N.	Gastonia
Patterson, John A.	Concord
Patterson, Reid	Charlotte
Payne, R. L.	Monroe
Peacock, James Walter	Thomasville
Peck, Edward J.	Hot Springs
Peck, W. A.	Ramseytown
Peeler, Clarence N.	Charlotte
Peeler, John H.	Salisbury
Peete, C. H.	Warrenton
Pegram, R. W. S.	Canton
Pemberton, Wm. D. (Hon.)	Concord
Pendleton, Wilson,	Asheville
Perkins, David R.	Marshville
Perkins, J. R.	Winston-Salem
*Pepper, John Kerr	Winston-Salem
Perkins, S. L.	W. Jefferson
Perry, E. M.	Rocky Mount
Perry, Mark P. (Hon.)	Macon
Perry, Vance P.	Kinston
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Peterson, J. M.	Spruce Pines
Peterson, W. C.	Wilmington
Petree, P. A.	Dunn
Petrie, Robert Wm.	Charlotte
Petteway, G. H.	Charlotte
Pfohl, Samuel F.	Winston-Salem
Pharr, Theo Franklin	Concord
*Pharr, Wm. W. (Hon.)	Charlotte
Phifer, Edward M.	Morganton

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*Phillips, C. C.	Charlotte
Phillips, C. H.	Fullers
Phillips, J. J.	Raleigh
Pickett, John A.	Burlington, R. F. D
Picot, L. J. (Hon.)	Littleton
Pierce, S. B.	Weldon
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Pittman, R. L.	Fayetteville
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Pollard, W. B.	Winton
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Pope, Henry T.	Lumberton
Powell, Jesse A.	Harrelsville
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Proctor, I. M.	Raleigh
Proffit, Thomas J.	Elk Park
Pruitt, G. C.	Monroe
Pugh, Charles H.	Gostonia
Purdy, J. J.	Oriental
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Putney, W. R.	Littleton
*Query, Richard Z.	Charlotte
*Quickel, Thomas C.	Gastonia
*Quillen, Emile B.	Rocky Mount
Quinn, Robert F.	Magnolia
Raby, J. G.	Tarboro
*Rainey, W. T.	Fayetteville
Ramseur, Geo. A.	China Grove
*Rankin, Pressly R.	Mt. Gilead
Rankin, S. W.	Concord
*Rankin, Watson S.	Raleigh
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*Ray, John B.	Leaksville
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Reaves, C. R.	Greensboro
Reaves, Robert G.	Greensboro
*Reaves, W. P.	Greensboro
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Reed, D. H.	Morehead Cit
Reed, John F.	Concor
Reeves, A. F.	Asheviil
*Reedy, Howard	Rowlan
*Register, F. M.	Raleigl
Reid, George P.	Forest Cit
Reid, James W.	Lowel
Reid, Thomas N.	Matthew
Reitzel, Claude E.	High Poin
*Reynolds, C. V.	Asheviil
*Reynolds, T. F.	Canto
Rhodes, James S.	Williamsto
Rhyne, Robert Edgar	Gastoni
Rhyne, S. A.	Mooresvill
*Richardson, F. H.	Black Mountai
Ricks, Leonard E.	Fairmon
Riddle, J. B.	Morganto
Riddle, N. C.	Lillingto
Riggsbee, A. E.	Morrisvill
Ring, Joseph W.	Elkin
Ringer, Paul H.	Asheville
Roberson, Charles	Greensbor
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Roberson, Geo. B.	Greensboro
Roberson, Mike	Durham
Roberts, Frank	Marshall
Roberts, H. C.	Coats
*Robertson, James F.	Wilmington
Robinson, Frank	Lowell
Robinson, J. D.	Wallace
Robinson, Willard F.	Mars Hill
Robinson, W. J.	Creston
Rodgers, W. D., Jr.	Warrenton
*Rodman, J. C.	Washington
Rodwell, John W.	Mocksville
Rogers, Jas. Rufus	Raleigh
Rogers, W. A.	Franklin
*Root, Albert S.	Raleigh
Rose, A. H.	Smithfield
*Ross, Geo. H.	Durham
Ross, Robert D.	Wadesboro
*Ross, Otho B.	Charlotte
*Rosser, R. G.	Vass
Rousseau, J. P.	Winston-Salem
*Rowe, H. B.	Mt. Airy
Rowe, R. H.	Hickory
*Royal, Ben F.	Morhead City
*Royall, M. A.	Elkin
*Royster, Hubert A.	Raleigh

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Royster, S. S.	Shelby
Royster, Thomas H.	Tarboro
Royster, W. I. (Hon.)	Raleigh
Rozier, R. G.	St. Pauls
Rucker, Adin Adam	Uree
Russell, Jesse M.	Canton
Russell, S. L.	Yadkinville, R. F. D. 1
Sadler, R. C.	Whiteville
Saine, J. W.	Lincolnton
Saliba, John	Elizabeth City
Saliba, Michael M.	Wilson
Salley, E. McQueen	Tryon
Salmons, H. C.	Jonesville
Salmons, L. R.	Winston-Salem
Sample, R. C.	Hendersonville
Sams, W. A.	Marshall
Saunders, Jos. H.	Williamston
Saunders, Shelden A.	Aulander
Sawyer, Charles Judson	Windsor
Sawyer, W. W.	Elizabeth City
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Schaub, O. P.	Winston-Salem
Schonwald, John T. (Hon.)	Wilmington
Schoonover, R. A.	Greensboro
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Scott, R. C.	Asheville
Scott, S. Floyd	Union Ridge
Scruggs W. Marion	Charlotte
Scruggs, W. H.	Asheville
Sessoms, E. T.	Autryville
Sevier, D. E.	Asheville
Sevier, J. T.	Asheville
Sexton, C. Hector	Dunn
*Shafer, Irving E.	Salisbury
*Shamburger, John B.	Star
Sharpe, F. L.	Statesville
Sharpe, C. R.	Lexington
*Sharpe, F. A.	Greensboro
Shaver, W. T.	Badin
Shaw, Colin	Wilmington
*Shaw, W. G.	Wagram
Shellum, O. W.	Lincolnton
*Sherrill, C. L.	Statesville
*Shields, Henry B.	Carthage
Shipp, Geo. W.	Newton
Shoenheit, E. W.	Asheville
*Shore, C. A.	Raleigh
*Shuford, Jacob Harrison	Hickory
Shugart, F. C.	High Point
Shull, J. R.	Charlotte
*Sidbury, J. B.	Wilmington
Sigman, Frederick G.	Spencer
Sikes, G. T. (Hon.)	Grisson
Siler, Fred L.	Franklin
Simmons, John O.	Charlotte
*Simmons, L. L.	Greensboro
Simpson, W. P.	Louisburg
Singletary, G. C.	Clarkton
Sink, C. S.	Wilkesboro
Skinner, L. C.	Charlotte (Chadwick Sta)
Slate, John S.	Winston-Salem
Slate, Wesley C.	Spencer
Sloan, D. B.	Wilmington
*Sloan, H. L.	Charlotte
Sloan, James M.	Gastonia
Sloan, Wm. H.	Ingold
*Slocum, R. B.	Wilmington
Sloop, Eustace H.	Crossnore
*Small, Victor R.	Raleigh
Smith, Alick T.	Greensboro
Smith, B. R.	Asheville
Smith, C. T.	Rocky Mount
Smith, G. A.	Black Creek
Smith, G. M.	Monroe
Smith, J. A.	Lexington
Smith, James B.	Pilot Mountain
*Smith, John McNeill	Rowland
Smith, James T.	Westfield
*Smith, L. J.	Wilson
*Smith, Owen	High Point
Smith, O. F.	Scotland Neck
Smith, R. A. (Hon.)	Goldsboro
Smith, Robert W.	Hertford
Smith, Slade A.	Wilmington
Smith, T. A.	Charlotte
Smith, W. F.	Chadbourn
Smith, Wm. H.	Goldsboro
Smithwick, James E.	Jamesville
Smoot, J. E.	Concord
*Smoot, Morris L.	Fayetteville
Snipes, E. P.	Jonesboro
Somers, L. P.	New Castle
Sorrell, L. P.	Raleigh, R 6
Sossomon, J. C.	Midland
Spainhour, Ellis H.	Winston-Salem
Speas, W. P.	Hickory
*Speed, J. A.	Durham

Name	*Address*
Speight, J. A.	Rocky Mount
Speight, J. P.	Rocky Mount
Speight, John W.	Roper
Speight, R. H., Sr. (Hon.)	Whitakers
Spencer, Frederick B.	Salisbury
Spencer, Wm. O.	Winston-Salem
Spicer, Richard W.	Goldsboro
*Spicer, William	Goldsboro
Spoon, A. O.	Denim
Spoon, Charles C.	Kimesville
*Spruill, Jos. L.	Sanatorium
Squires, Claude	Charlotte
Staley, S. Walter	Rocky Mount
Stamps, Thos. (Hon.)	Lumber Bridge
Stancill, Wm. W.	Raleigh
Stanley, John H.	Four Oaks
*Stanton, D. A.	High Point
Starr, H. F.	Greensboro
Staton, Z. D.	Tarboro
Sterling, W. C.	Winston-Salem
Sterrett, J. R.	W. Durham
*Stevens, M. L.	Asheville
Stevens, Samuel A.	Monroe
*Stewart, H. D.	Monroe
Stewart, J. J.	Mt. Holly
Stewart, J. T.	Summerfield, R. F. D.
Stockard, J. K.	Greensboro
Stokes, P. B.	Ruffin
Stokes, James Ernest	Salisbury
Stone, Wesley M.	Dobson
Storie, J. G.	Proctor
*Street, M. E.	Glendon
Strickland, Edward F.	Bethania
Strickland, Ernest L.	Wilson
Strickland, W. J.	Moncure
Stringfield, Samuel L.	Sunburst
Stringfield, Thomas	Waynesville
Strong, Charles M.	Charlotte
Strong, Wm. M.	Charlotte
Strosnider, Charles F.	Goldsboro
Suiter, W. G.	Weldon
Summerell, E. M. (Hon.)	China Grove
Summerell, G. H.	Ayden
Summers, Charles L.	Baltimore, Md.
Summer, Thomas W.	Fletcher
Summer, Wm. I.	Randleman
Sutton, Carl W.	Richlands
Sutton, Wm. G.	Seven Springs
Swann, Jos. F.	Semora
Sweaney, H. M.	Durham
*Sweaney, John	West Durham
Sweat, Wm. P.	Southern Pines
*Swindell, C. L.	Beaufort
*Swindell, Lewis H.	Washington
Sykes, Gibson L.	Salemburg
Talley, J. S.	Troutman
*Tankersley, J. W.	Greensboro
Tate, C. S.	Ramseur
Tate, W. C.	Banner Elk
*Tayloe, D. T. (Hon.)	Washington
Tayloe, Joshua	Washington
*Taylor, F. R.	High Point
Taylor, G. W.	Mooresville
Taylor, H. C.	Charlotte (Chadwick Sta)
*Taylor, I. M. (Hon)	Morganton
Taylor, James N.	Burlington
*Taylor, James T.	Madison
Taylor, T. G.	Leaksville
Taylor, W. I.	Burgaw
Taylor, Wm. L.	Stovall
Taylor, Wm. S.	Mt. Airy
Teague, R. J.	Roxboro
*Templeton, James M.	Cary
Tennent, G. S.	Asheville
Terry, J. R.	Lexington
Terry, P. R.	Asheville
Terry, Wm. Calvin	Hamlet
Thacker, J. H.	Reidsville
Thaxton, B. A.	Roxboro
Thigpen, F. L.	Hookerton
Thigpen, H. G.	Scotland Neck
Thigpen, Wm. J.	Tarboro
Thomas, G. G. (Hon.)	Wilmington
*Thomas, J. G.	Greensboro
*Thomas, W. Clyde	Siler City
Thomas, Wm. N.	Oxford
Thompson, Alexander Frank	Troy
*Thompson, Cyrus	Jacksonville
*Thompson, C. D.	Lincolnton
Thompson, Edg. S.	Winston-Salem
Thompson, Fred	Pine Bluff
Thompson, Hugh A.	Raleigh
Thompson, Joseph	Creedmore
Thompson, J. B.	Bostick
Thompson, J. McI.	Mebane
Thompson, Neill A.	Lumberton
*Thompson, S. R.	Charlotte

Name	*Address*
Tidwell, J. E.	Andrews
Tilson, Jacob Carson	Marshall
Todd, L. C.	Charlotte
Toole, A. F.	Asheville
Townsend, M. L.	Charlotte
Trantham, H. T. (Hon.)	Salisbury
Triplett, W. R.	Purlear
Troxler, R. M.	Burlington
Tucker, F. P.	Milton
Tucker, John H.	Charlotte
Tull, Henry (Hon.)	Kinston
Turlington, H. C.	Cooper
Turner, Henry Gray	Raleigh
Turner, J. M.	N. Wilkesboro
Turner, J. P.	Greensboro
Tuttle, A. F.	Spray
*Tuttle, Reuben G.	Walnut Grove
Tydeman, F. W. L.	Wood River, Ill.
Tyner, Carl V.	Smithfield
Tyson, T. D.	Mebane
Underhill, Henry P.	Wendell
Underwood, O. E.	Roseboro
Upchurch, Robert T.	Henderson
Utley, H. H.	Benson
Valk, A. DeT.	Winston-Salem
*Vann, J. R., Jr.	Fayetteville
*Van Poole, C. M. (Hon.)	Salisbury
Vaughn, J. C.	Rich Square
*Verdery, W. C.	Fayetteville
Vernon, James W.	Morganton
Vestal, Willis Jasper	Lexington
Vick, Geo. D.	Selma
Von Ruck, Karl	Asheville
*Wadsworth, Wm. H.	Concord
Wakefield, Harry A.	Charlotte
*Walker, H. D.	Elizabeth City
Walker, J. B.	Gibsonville
Walker, L. A.	Burlington
Walker, L. D.	Charlotte
Walker, L. K.	Ahoskie
*Walker, Walter Erwin	Burlington
*Wall, R. L.	Winston-Salem
Walters, Charles Manley	Burlington
Ward, Jesse E.	Robersonville
Ward, Vernon Albert	Robersonville
Warren, R. F.	Prospect Hill
Warren, R. L.	Dunn
Warren, Wm. E.	Williamston
Watkins, Finso B.	Morganton
Watkins, Geo. S.	Oxford
Watkins, G. T.	Durham
Watson, John B.	Raleigh
*Watson, Leon	Broadway
Watson, Thomas M.	Maxton
*Way, J. Howell (Hon.)	Waynesville
Weaver, Henry B. (Hon.)	Asheville
Weaver, W. J.	Asheville
Webb, B. G.	Andrews
Webb, S. Edgar	Draper
Webb, W. P.	Rockingham
*Welborn, Wm. R.	Elkin
Wessell, John C.	Wilmington
West, C. F.	Kinston
West, Geo. H.	Fairmont
*West, Louis N.	Raleigh
West, Robert M.	Salisbury
West, T. M.	Fayetteville
Weyher, V. E.	Kinston
Wharton, Chas. R.	Ruffin
Wharton, L. D.	Smithfield
Wheeler, J. H.	Henderson
Whelpley, Frank L.	Goldsboro
Whetted, W. P.	Eureka
Whichard, M. P.	Edenton
*Whisnant, Albert M.	Charlotte
Whitaker, A. C.	Julian
Whitaker, Frederick A.	Kinston
Whitaker, F. C.	Enfield
*Whitaker, Frederick S.	Kinston
Whitaker, R. A. (Hon.)	Kinston
Whitaker, R. B.	Whiteville
White, John W. (Hon.)	Wilkesboro
White, R. A.	Asheville
White, W. M.	Lenoir
Whitehead, John (Hon.)	Salisbury
Whitehead, J. P.	Rocky Mount
Whitehurst, E. B.	Marshallberg
Whitefield, Wm. Cobb (Hon.)	Grifton
Whitley, A. W.	Matthews, R. F. D.
Whitley, A. D. N.	Unionville
Whittington, James B.	Winston-Salem
Whittington, W. P. (Hon.)	Asheville
Whittington, Wm. W.	Snow Hill
Wilcox, J. W.	Laurel Hill
Wilkerson, Charles B.	Raleigh

Name	*Address*
*Wilkerson, Charles E.	Randleman
Wilkerson, T. E.	Raleigh
Wilkes, Grover,	Sylva
Wilkins, J. C.	Haw River
*Wilkins, R. B.	Raeford
Wilkins, Samuel A.	Dallas
Williams, Alfred F.	Wilson
Williams, B. B.	Greensboro
*Williams, Claude B.	Elizabeth City
Williams, Edward J.	Monroe
Williams, John A.	Greensboro
*Williams, John D.	Guilford Station
*Williams, James Marcus	Warsaw
Williams, John W.	Washington
Williams, Lester L.	Union Mills
*Williams, L. P.	Wilmington
Williams, R. C.	Wallace
Williams, T. G.	Conetoe
Willis, A. P.	Candler
Willis, B. C.	Rocky Mount
Wilson, Albert R. (Hon.)	Greensboro
Wilson, Frank G.	Gastonia
Wilson, Robert B.	Newton Grove
Wilson, W. P.	Madison
Wingate, G. C.	Charlotte
Winstead, J. A.	Nashville
Wishart, Wm. E.	Charlotte
Withers, G. L.	Charlotte
*Witherspoon, B. J.	Charlotte
Wolfe, H. C.	Greensboro
Wolff, D. R.	Greensboro
Woltz, John L.	Mt. Airy
*Wood, E. J.	Wilmington
Wood, J. W.	Shelby
Woodard, A. G.	Princeton
Woodard, C. A.	Wilson
Woodard, E. D.	Bayboro
Woodard, G. B.	Kenly
Woodcock, John H.	Asheville
Woodruff, Fred G.	High Point
Woodson, Charles W.	Salisbury
Wooten, Amos Monroe	Pinetops
Wooten, W. I.	Wilson
*Wright, J. B.	Raleigh
Wright, Thomas H.	Charlotte
Wyatt, Wortham	Winston-Salem
Yarborough, R. F.	Louisburg
*Yokely, R. V.	R. F. D. 1, Lexington
York, Alexander A.	R F D 2, Linwood
York, Hugh B.	Williamston
York, N D.	Mebane
Young, G. M.	Postell
Young, J. J.	Clayton
Young, L. B.	R F D 3, Wake Forest
Zimmerman, R. U.	R F D 4, Lexington
Zollicoffer, Augustus R.	Weldon
Zollicoffer, D. B.	Weldon

ROSTER OF MEMBERS FOR 1921

BY COUNTIES

NOTE.—Every physician in the State whose name we could secure has had an opportunity to supply correct information as to his name, postoffice, academic and medical education, date of State license, and date State Society was joined. A few did not take advantage of the opportunity, however. Any one finding an error should report it to the secretary of the society.

ALAMANCE COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, John Rainey Parker, Burlington Univ. Coll. of Med., Richmond, 1901	1901	1917
Secretary, James C. Joyner, Burlington Univ. of Md., 1918	1919	1920
Anderson, Chas. Alexander, Burlington P. and S., Balt., 1901	1893	1896
Caddell, S. W., Elon College Univ. of Tenn., 1892	1892	1914
Faucett, T. S., Burlington Balt. M. C., 1892	1893	1900
Freeman, Richard A., Burlington, (Hon.) Wash. Univ. School of Med., 1870	1879	1891
Goley, Wm. R., Graham P. and S., Balt., 1885	1885	1893
Kernodle, Charles, Elon College Univ. of Md., 1911	1911	1920
McDade, B. B., Corbett, Route 1 Univ. of Md., 1918	1918	1920
McPherson, C. W., Burlington Univ. of Md., 1910	1910	1912
McPherson, R. G., Saxaphaw Univ. of N. C., 1908	1908	1909
Montgomery, Harry M., Burlington Univ. of N. C., 1903	1903	1904
Moser, W. D., Burlington Univ. of N. C., 1910	1910	1910
Parris, O. J., Swepsonville	1904	1904
Pickett, John A., Burlington, R. F. D. Univ. of Nashville, 1894	1894	1904
Scott, S. Floyd, Union Ridge Univ. of Penn., 1918	1918	1920
Spoon, Charles E., Kimesville Univ. of Tenn., Memphis, 1907	1914	1920
Taylor, James N., Graham Med. Coll. of Va., 1901	1901	1905
Thompson, J. Mel., Mebane Univ. of N. C., 1909	1909	1920
Troxler, R. M., Burlington Univ. of Md., 1914	1914	1915
Tyson, T. D., Mebane Univ. Coll. of Med., Va., 1899	1899	1904
Walker, L. A., Burlington Univ. Coll. of Med., Va., 1898	1899	1905
Walker, Walter Erwin, Burlington Med. Coll. of Va., 1903	1903	1905
Walters, Charles Manley, Burlington Univ. of Md. and Coll. of P. and S., Balt., 1908	1908	1909

Name and Address	*Licensed*	*Joined State Society*
Warren, R. F., Prospect Hill Atlanta School of Med., 1911	1911	1919
Wilkins, J. C., Haw River Univ. of Md., 1911	1911	1920
York, N. D., Mebane Louisville Med. Coll., 1878	1878	1885

ANSON COUNTY SOCIETY

President,		
Secretary,		
Ross, Robert D., Wadesboro N. Y. Univ., 1890	1890	1912

ASHE COUNTY SOCIETY

President, Thomas J. Jones, Lansing Lincoln Memorial Univ., Knoxville, 1895	1885	1885
Secretary, S. L. Perkins, W. Jefferson Balt. Med. Coll., 1891	1892	1917
Blevins, Manly, W. Jefferson Coll. of P. and S., Balt.	1885	1904
Colvard, J. W., Jefferson	1904	1904
Ray, R. C., Beaver Creek Med. Coll. of Va., 1916	1916	1917
Robinson, W. J., Creston Univ. Med. Coll. of Kansas City, 1904	1907	1917

AVERY COUNTY SOCIETY

President,		
Secretary, W. C. Tate, Banner Elk Tenn. Med. Coll., 1908	1909	1912
Burleson, W. B., Plumtree Univ. of Md., and Coll. of P. and S., Balt., 1915	1916	1915
Hodges, Joseph M., Cranberry Univ. of Md., 1904	1906	1914
Proffitt, Thomas J., Elk Park Louisville Med. Coll., 1902	1903	1914
Sloop, Eustace H., Crossnore N. C. Med. Coll., 1905; Jeff. Med. Coll., 1908	1905	1909

BEAUFORT COUNTY SOCIETY

President, H. W. Carter, Washington Univ. of Va., 1895	1895	1910
Secretary, Lewis H. Swindell, Washington Univ. of Pa., 1916	1916	1919
Bonner, J. B., Aurora Univ. of Md., 1918	1918	1920
Brown, E. M., Washington Bellevue Med. Coll., 1896	1896	1901
Janney, J. H., Washington Johns Hopkins, 1918	1918	1921
Kluttz, Dewitt, Washington Univ. of Pa., 1918	1919	1920

Name and Address	Licensed	Joined State Society
Nicholson, John Lawrence, Washington Univ. of N. Y., 1875	1880	1904
Nicholson, Sam T., Washington, (Hon.) P. and S., Balt., 1881	1885	1885
Rodman, J. C., Washington Bellevue Med. Coll., 1892	1892	1895
Tayloe, D. T., Washington, (Hon.) Bellevue Med. Coll., 1885	1885	1885
Tayloe, Joshua, Washington Bellevue Med. Coll., 1892	1892	1904
Williams, John W., Washington Univ. of Md., 1906	1906	1906

BERTIE COUNTY SOCIETY

President, Shelden A. Saunders, Aulander Jeff. Med. Coll., Philadelphia, 1914	1914	1918
Secretary, Frank Henry Garriss, Lewiston Jeff. Med. Coll., 1912	1912	1918
Benthall, B. F., Aulander Med. Coll. Va., 1917	1917	1920
Capehart, Alamson, Roxobel		1905
Evans, L. B., Windsor Med. Coll. Va., 1900	1900	1907
Lyons, Henry Wise, Windsor Univ. of Penn., 1918	1919	1920
Mitchell, Z. P., Colerain Med. Coll of Va., 1920	1920	1921
Norfleet, Edgar Powell, Roxobel Med. Coll. of Va., 1914	1914	1920
Sawyer, Charles Judson, Windsor P. and S., Balt., 1895	1895	1897

BLADEN COUNTY SOCIETY

President,		
Secretary, E. S. Clark, Clarkton Med. Coll. of Va., 1914	1914	1915
Bullard, G. F., Elizabethtown N. C. Med. Coll., 1915	1915	1916
Clark, D. D., Clarkton Med. Coll. of Va., 1917	1917	1920
Clark, G. L., Clarkton, (Hon.) Univ. of N. Y., 1876	1900	1904
Holmes, A. B., Council Jeff. Med. Coll., 1910	1910	1914
Hutchinson, S. S., Bladenboro N. C. Med. Coll., Charlotte, 1900	1911	1917
Singletary, G. C., Clarkton Univ. of Tenn., 1917	1917	1918

BRUNSWICK COUNTY SOCIETY

President,		
Secretary,		
Goodman, Erastus G., Lanvale Univ. of Md., 1891	1891	1892

BUNCOMBE COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, H. Thompson Frazer, Asheville	1908	1909
Coll. of Physicians, N. Y., 1901		
Secretary, Jere E. Cocke, Asheville	1905	1907
Louisville Med. Coll., 1905		
Adams, J. L., Asheville	1910	1913
Jeff. Med. Coll., 1910		
Alexander, Geo., Asheville	1920	1921
Univ. of Louisville, Ky., 1913		
Ambler, Charles P., Asheville	1890	1891
West. Reserve Univ., 1889		
Anderson, Jas. G., Asheville	1906	1910
Univ. of N. C., 1906		
Archer, Isaac J., Black Mountain	1905	1907
Northwestern, 1896		
Baker, W. E., Arden	1915	1916
Chattanooga Med. Coll., 1908		
Battle, S. W., Asheville (Hon.)	1887	1887
Bellevue Med. Coll., N. Y., 1875 (Hon.)		
Beall, L. G., Asheville	1906	1912
N. C. Med. Coll., 1906; Univ. of Pa., 1911		
Beers, Charles, Asheville	1918	1920
Med. Coll. of Ohio, 1896		
Bisch, Louis E., Asheville	1919	1919
Columbia Coll. of P. and S., N. Y., 1911		
Bown, Herbert H., Asheville	1917	1918
Columbus Med. Coll., Ohio, 1892		
Briggs, Henry H., Asheville	1901	1903
Yale Univ. School of Medicine, 1897		
Brookshire, Harley G., Leicester, R. F. D. 5	1905	1907
N. C. Med. Coll., 1905		
Brownson, Wm. C., Asheville	1885	1885
Univ. of N. Y., 1878		
Buchner, J. M., Swannanoa	1909	1912
Univ. of N. C., 1908		
Buckner, Rufus G., Asheville	1907	1909
Univ. of Arkansas, 1897		
Calloway, Arthur W., Asheville	1899	1904
Chicago Med. School; Harvard Med. School, 1895		
Cheadle, C. M., Asheville	1919	1921
Keokuk Med. Coll., 1898		
Cheesborough, Thomas P., Asheville	1891	1900
Univ. of N. Y., 1891		
Cocke, C. H., Asheville	1902	1908
Cornell Univ., 1905		
Cocke, E. R., Asheville	1914	1917
Jeff. Med. Coll., 1913		
Colby, C. D. W., Asheville	1909	1912
Army Med. School, 1895; Univ. of Mich., 1893		
Cotten, Clyde E., Asheville	1901	1901
Northwestern, 1889		
Denchfield, A. L., Asheville	1914	1916
Univ. and Bellevue Hosp., N. Y., 1905		
Dickie, J. W., Asheville	1920	1921
Jeff. Med. Coll., 1918		
Dunn, Wm. L., Asheville	1900	1900
Univ. of Mich., 1891		
Eckel, O. F., Asheville	1907	1909
Med. Coll. of S. C., 1906		

Name and Address	*Licensed*	*Joined State Society*
Edwards, B. O., Asheville	1905	1909
N. C. Med. Coll., 1905		
Edwards, C. P., Asheville	1903	1921
Tenn. Med. Coll., 1900		
Elias, Lewis W., Asheville	1906	1907
Columbia Univ., 1903		
Everetts, Jesse J., Asheville	1920	1921
Atlanta School of Med., 1912		
Flack, Roswell E., Asheville	1913	1914
Johns Hopkins Univ., 1913		
Fletcher, M. H., Asheville (Hon.)	1881	1882
Bellevue Med. Coll., 1881		
Foster, M. H., Biltmore	.....	1920
Univ. of Pa., 1897		
Fresh, Wm. M., Weaverville	1913	1919
Medico-Chirurgical Coll., Phila., 1906		
Gardner, Garrett D., Asheville	1908	1909
Lincoln Memorial, 1908		
Glenn, Eug. B., Asheville	1896	1900
Jeff. Med. Coll., 1896		
Grantham, Wm. L., Asheville	1906	1911
N. C. Med. Coll., 1906		
Greene, Joseph B., Asheville	1910	1911
Univ. of Va., 1893		
Griffin, M. A., Asheville	1917	1918
Jeff. Med. Coll., 1917		
Griffin, W. R., Asheville	1910	1917
Jeff. Med. Coll., 1910		
Griffith, F. W., Asheville	1911	1912
Johns Hopkins, 1906		
Griffith, L. M., Asheville	1916	1917
Johns Hopkins Med. School, 1916		
Harris, David W., Asheville	1908	1911
Univ. of N. C., 1908		
Harris, Isaac A., Alexander, R. F. D., 2 (Hon.)	1885	1904
Jeff. Med. Coll.		
Harrison, H. H., Asheville	1905	1918
Jeff. Med. Coll., 1905		
Herbert, Wm. P., Asheville	1910	1911
Univ. of Va., 1907		
Hipps, A. G. T., Asheville	1916	1920
Jeff. Med. Coll., 1916		
Hollyday, W. M., Asheville	1914	1915
Univ. of Md., 1908		
Hunnicutt, Wm. J., Asheville	1908	1909
Univ. of Tenn., 1895		
Huston, John Walter, Asheville	1912	1913
Rush, Chicago, 1904		
Ivey, R. R., Biltmore, c/o U. S. P. H. S.	.....	1921
Univ. of Ala., 1909		
Jordon, Chas. S., Asheville	1891	1899
Univ. of N. Y., 1899		
Knoefel, A. E., Black Mountain	1914	1916
Univ. of Louisville, 1893		
Lord, Marjery J., Montreat	1918	1918
Univ. of Mich., 1916		
Lynch, J. M., Asheville	1912	1913
Univ. of Md., 1904		
McCracken, C. M., Fairview	1896	1904
N. C. Med. Coll., 1896		

Name and Address	*Licensed*	*Joined State Society*
McRae, J. D., Asheville Univ. of Nashville, Med. Dept., 1897	.....	1920
MacPherson, G. S., Asheville Med. School of Harvard Univ., 1894	1919	1920
Mallett, E. P., Hendersonville L. I. Coll. Hosp., Brooklyn, 1889	1914	1914
Meriweather, Benj. M., Asheville Univ. of Louisville, Ky., 1915	1915	1916
Minor, Chas. L., Asheville Univ. of Va., 1888	1895	1898
Morris, E. R., Asheville Louisville Med. Coll., 1896	1896	1899
Orr, Chas. C., Asheville Univ. of Md., 1904	1904	1905
Orr, Peter B., Asheville Jeff. Med. Coll., 1901	1901	1904
Pendleton, Wilson, Asheville Univ. of Va., 1908	1919	1920
Pritchard, Arthur T., Asheville Jeff. Med. Coll., 1905	1905	1907
Purefoy, Geo. W., Asheville Jeff. Med. Coll., 1876 (Hon.)	1884	1884
Reeves, A. F., Asheville Geo. Washington Univ., 1906	1909	1910
Reynolds, C. V., Asheville Univ. of N. Y., 1895	1895	1896
Richardson, F. H., Black Mountain Cornell Univ. Med. Coll., 1906	1907	1920
Ringer, Paul H., Asheville P. and S., N. Y., 1904	1906	1907
Scott, R. C., Asheville Jeff. Med. Coll., 1902	1916	1919
Scruggs, W. H., Asheville Univ. of Md., 1913	1915	1917
Sevier, D. E., Asheville Jeff. Med. Coll., 1895	1895	1899
Sevier, J. T., Asheville Jeff. Med. Coll., 1895	1895	1899
Shoenheit, E. W., Asheville Jeff. Med. Coll., 1920	1920	1921
Smith, B. R., Asheville Jeff. Med. Coll., 1911	1913	1914
Stevens, M. L., Asheville Baltimore Med. Coll., 1891	1892	1893
Tennent, G. S., Asheville N. C. Med. Coll., 1894	1894	1898
Terry, P. R., Asheville Geo. Washington Univ., 1906	1912	1913
Toole, A. F., Asheville Univ. of Va., 1900	1917	1918
Von Ruck, Karl, Asheville (Hon.) Univ. of Tubingen, 1878	1889	1891
Weaver, Henry Bascom, Asheville Washington Univ., Baltimore, 1872 (Hon.)	1881	1882
Weaver, W. J., Asheville Jeff. Med. Coll., 1898	1898	1915
White, R. A., Asheville Univ. of Cincinnati, 1918	1920	1921
Whittington, Williard P., Asheville P. and S., Baltimore, 1882 (Hon.)	1882	1882

Name and Address	*Licensed*	*Joined State Society*
Willis, A. P., Candler	1904	1909
Univ. of N. C., 1904		
Woodcock, John H., Asheville	1894	1921
Hosp. Coll. of Medicine, Louisville, 1893		

BURKE COUNTY SOCIETY

President, Jas. W. Vernon, Morganton	1909	1913
Jeff. Med. Coll., 1909		
Secretary, G. M. Billings, Morganton	1919	1920
Tulane Univ. of La. School of Med., 1919		
Anderson, James Robt., Morganton	1885	1903
Tulane Univ., 1882		
Bristow, C. O., Morganton	1920	1921
Jeff. Med. Coll., 1918		
Gayle, Edward M., Richmond, Va.	1902	1902
Univ. of Va., 1902		
Kibler, W. H., Morganton	1914	1918
Univ. of Pa., 1914		
Long, Benj. L., Glen Alpine	1913	1914
N. C. Med. Coll., 1913		
McCampbell, John, Morganton	1895	1899
Baltimore Med. Coll., 1894		
Phifer, Edward M., Morganton	1902	1904
N. C. Med. Coll., 1901		
Riddle, J. B., Morganton	1904	1904
Vanderbilt Univ., 1898		
Taylor, I. M., Morganton	1883	1883
P. and S., N. Y., 1882 (Hon.)		
Watkins, Finso B., Morganton	1907	1910
Jeff. Med. Coll., 1907		

CABARRUS COUNTY SOCIETY

President, J. A. Hartsell, Concord	1914	1916
Jeff. Med. Coll., 1912		
Secretary, John F. Reed, Concord	1909	1912
Univ. of N. Y., 1893		
Bangle, J. A., Concord	1916	1919
Med. Coll., Richmond, Va., 1916		
Bunn, J. J., Mt. Pleasant	1913	1915
N. C. Med. Coll., 1912		
Burleyson, L. N., Concord	1891	1906
Univ. of Md., 1891		
Caldwell, Daniel G., Concord	1885	1885
Univ. of Md., 1885 (Hon.)		
Flowe, R. Frank, Kannapolis	1914	1915
N. C. Med. Coll., 1913		
Foil, M. A., Mt. Pleasant	1891	1905
Jeff. Med. Coll., 1891		
Gouger, Geo. J., Concord	1891	1899
Univ. of Md., 1891		
King, Richard M., Concord	1903	1907
Jeff. Med. Coll., 1903		
Lubchenko, N. E., Harrisburg	1915	1916
N. C. Med. Coll., 1915		
McFayden, Paul R., Concord	1901	1904
Med. Coll. of Va., 1901		
Patterson, John A., Concord	1911	1912
Univ. Coll. of Va., 1911		

Name and Address	*Licensed*	*Joined State Society*
Pemberton, Wm. D., Concord	1887	1887
Univ. of Md., 1887 (Hon.)		
Pharr, Theo. F., Concord	1881	1882
Bellevue Med. Coll., 1877 (Hon.)		
Rankins, S. W., Concord	1912	1914
Jeff. Med. Coll., 1912		
Smoot, J. E., Concord	1894	1902
Baltimore Med. Coll., 1893		
Sossaman, J. C., Midland	1917	1918
N. C. Med. Coll., 1915		
Wadsworth, Wm. H., Concord	1913	1913
Jeff. Med. Coll., 1911		

CALDWELL COUNTY SOCIETY

President,	.....	.....
Secretary, Lawrence H. Coffey, Lenoir	1906	1913
Med. Coll. of Va., 1906		
Carter, G. H., Kings Creek	1899	1904
Univ. of N. Y., 1877		
Goodman, A. B., Lenoir	1897	1910
N. C. Med. Coll., 1898		
Hickman, M. I., Hudson	1906	1910
Univ. Coll. of Med., 1906		
Houck, Albert F., Lenoir	1891	1893
P. and S., Balt., 1884		
Kent, Alfred A., Lenoir	1885	1894
Jeff. Med. Coll., Phila., 1885		
McNairy, Caroline, Lenoir	1917	1919
Woman's Med. Coll of Pa., 1917		
Pitts, W. I., Lenoir	1911	1913
Univ. of the South, Sewanne, 1903		
Storie, J. G., Proctor	1898	1908
Tenn. Med. Coll., 1898		
White, W. M., Lenoir	1899	1905
Atlanta Coll. P. and S., 1899		

CARTERET COUNTY SOCIETY

President, C. S. Maxwell, Beaufort	1899	1904
Univ. of the South, 1900		
Secretary, D. H. Reed, Morehead City	1904	1917
George Washington Univ., 1901		
Ball, M. W., Newport	1911	1913
Atlanta School of Med., 1909		
Bonner, K. P. B., Morehead City	1904	1905
Med. Coll. of Va., 1905		
Duncan, Charles L., Beaufort	1902	1904
Univ. of Md., 1902		
Loftin, P. B., Beaufort	1888	1918
Univ. of Md., 1888		
Royal, Ben F., Morehead City	1909	1909
Jeff. Med. Coll., 1909		
Swindell, C. L., Beaufort	1909	1920
Univ. of Md., 1909		
Whitehurst, E. B., Marshallburg	1917	1920
Med. Coll. of Va., 1917		

CASWELL COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President,	.....	.....
Secretary,	.....	.....
Malloy, S. A., Yanceyville Ky. School of Med., 1897	1898	1903
Tucker, F. P., Milton P. and S., Balt., 1882	1885	1919

CATAWBA COUNTY SOCIETY

President, H. C. Menzies, Hickory N. C. Med. Coll., 1894	1894	1899
Secretary, W. P. Speas, Hickory Univ. Coll. of Med., Richmond, 1911	1911	1919
Bandy, W. G., Maiden Vanderbilt Univ., 1908	1912	1916
Blackburn, T. C., Hickory Balt. Med. Coll., 1896	1896	1909
Campbell, J. R., Newton Univ. of Md., 1876	1885	1898
Flowers, G. E., Hickory	.....	1915
Foard, Frank, Hickory Chicago Coll. of Med. and Surgery, 1915	.....	1917
Hollar, O. L., Hickory Balt. Med. Coll., 1892	1898	1920
Hunsucker, Charles L., Hickory N. C. Med. Coll., 1913	1913	1915
Klutz, A. F., Maiden Jeff. Med. Coll., 1917	1917	1920
Klutz, P. J., Maiden	1885	1916
Long, Glenn, Newton N. C. Med. Coll., 1912	1912	1915
Long, Fred Y., Catawba Balt. Med. Coll.; N. C. Med. Coll., 1917	1898	1898
Rowe, R. H., Hickory Univ. of Louisville, 1912	1912	1913
Shipp, George W., Newton Hosp. Coll. of Med., Louisville, Ky., 1897	1911	1915
Shuford, Jacob Harrison, Hickory Univ. of Michigan, 1901	1902	1902

CHATHAM COUNTY SOCIETY

President, R. W. Palmer, Gulf Louisville Med. Coll., 1890	1891	1891
Secretary, W. Clyde Thomas, Siler City Med. Coll. of Va., 1917	1917	1920
Burns, W. M., Goldston P. and S., Balt., 1878	1885	1905
Denson, H. A., Bennett Coll. of P. and S., Indianapolis, Ind., 1887	1913	1913
Edwards, J. D., Siler City Louisville Med. Coll. Ky., 1887	.....	1894
Fields, Robert M., Goldston	1909	1911

Name and Address	*Licensed*	*Joined State Society*
Harper, J. M., Pittsboro	.....	1911
Kirkman, Thomas A., Siler City	.....	1905
McManus, W. L., Boulee Atlanta School of Med., 1906	1912	1913
Milliken, J. S., Pittsboro Jeff. Med. Coll., 1915	1915	1916
Strickland, W. J., Moncure Chattanooga Med. Coll., 1903	1890	1907

CHEROKEE COUNTY SOCIETY

President, C. V. Orr, Andrews Univ. of La., 1909	1909	1909
Secretary, Wm. C. Morrow, Andrews Atlanta School of Med., 1907	1909	1909
Adams, N. B., Murphy Tenn. Med. Coll., 1896	1909	1909
Herbert, Fred Lee, Andrews Lincoln Med. Univ., Knoxville, 1904	1912	1912
Highway, S. C., Murphy Ohio Medical, 1885	1885	1898
Hill, J. N., Murphy Univ. of Louisville, 1909	1909	1909
Meroney, B. B., Murphy Gate City Med. Coll., Texas, 1906	1908	1909
Tidwell, J. E., Andrews Chattanooga Med. Coll., 1903	1913	1915
Webb, B. G., Andrews Louisville Med. Coll., 1885	1885	1885
Young, G. M., Postell Lincoln Memorial Univ., 1916	1917	1918

CHOWAN-PERQUIMANS SOCIETY

President,	.....	.....
Secretary, Robert W. Smith, Hertford Univ. of Md., 1892	1892	1918
Cason, H. M. S., Edenton Univ. of Md., 1899	1899	1899
Cox, Thomas A., Hertford Univ. of Md., 1892	1907	1918
Dillard, Jr., Richard, Edenton (Hon.) Jeff. Med. Coll., 1879	1880	1880
McMillan, J. D., Edenton (Hon.)	.....	.....
Mitchener, J. S., Raleigh Johns Hopkins Univ., 1915	1917	1918
Whichard, M. P., Edenton Univ. of Md., 1910	1910	1918

CLEVELAND COUNTY SOCIETY

President, Jos. P. Aydlette, Earl Ky. Univ., 1901	1903	1903
Secretary, E. W. Gibbs, Shelby Univ. of N. C., 1907	1907	1918
Ellis, R. C., Shelby (Hon.) Balt. Med. School, 1886	.....	1891

Name and Address	*Licensed*	*Joined State Society*
Gold, G. M., Shelby, R. 5	1911	1914
Charlotte Med. Coll., 1911		
Gold, T. B., Lawndale	1911	1915
N. C. Med. Coll., 1911		
Hamrick, T. G., Shelby	1904	1904
P. and S., Balt., 1895		
Houser, E. A., Shelby	1902	1904
Balt. Univ., 1902		
Hunt, J. F., Belwood	1900	1912
Univ. of Tenn., 1900		
Lackey, F. H., Fallston	1915	1920
Univ. of Md., 1915		
Lattimore, E. B., Shelby	1896	1904
Bellevue Med. Coll., 1897		
Lee, Lawrence Victor, Lattimore	1897	1904
Atlanta School of Med., 1894		
Mitchell, W. F., Shelby	1900	1904
Univ. of Md., 1890		
Oates, George, Grover	1894	1904
Univ. of Louisville, 1871		
Palmer, B. H., Shelby	1898	1904
Louisville Med. Coll., 1896		
Royster, S. S., Shelby	1896	1904
Tenn. Med. Coll., 1890		
Wood, J. W., Shelby, R. 3	1903	1900
Louisville Med. Coll., 1892		

COLUMBUS COUNTY SOCIETY

President,		
Secretary, G. S. Cox, Tabor	1911	1914
N. C. Med. Coll., Charlotte, 1911		
Baggott, Leamon, Tabor	1907	1909
N. C. Med. Coll., 1907		
Floyd, L. D., Cerro Gordo	1911	1912
N. C. Med. Coll., 1911		
Johnson, Floyd, Cerro Gordo	1903	1904
Memphis H. M. C., 1903		
Moore, T. V., Acme	1901	1911
Balt. Med. Coll., 1901		
Sadler, R. C., Whiteville	1912	1915
N. C. Med. Coll., 1912		
Smith, W. F., Chadbourn	1904	1905
N. C. Med. Coll., 1904		
Whitaker, R. B., Whiteville	1912	1913
Univ. Coll. of Med., Va., 1912		

CRAVEN COUNTY SOCIETY

President,		
Secretary,		
Caton, George A., New Bern	1898	1904
Med. Coll. of Va., 1898		
Combs, Howard J., New Bern	1918	1919
Jeff. Med. Coll., 1918		
Daniels, R. L., New Bern	1912	1919
Med. Coll. of Va., 1912		

Name and Address	*Licensed*	*Joined State Society*
Duffy, Leinster, New Bern P. and S., Baltimore, 1889	1888	1888
Duffy, R. N., New Bern Johns Hopkins, 1906	1907	1908
Hughes, Francis W., New Bern (Hon.) Univ. of Pa., 1880	1885	1885

CUMBERLAND COUNTY SOCIETY

President, P. W. Olive, Wade P. and S., Balt., 1907	1907	1909
Secretary, H. L. Cook, Fayetteville Jeff. Med. Coll., 1918	1918	1920
Allgood, R. A., Fayetteville Univ. of Med.; P. and S. Coll., 1912	1916	1917
Averitt, K. G., Cedar Creek Balt. Med. Coll., 1893	1893	1902
Bradford, B. M., Hope Mills N. C. Med. Coll., 1913	1915	1920
Bullock, Thomas C., Autryville P. and S., Balt., 1885	1885	1905
Elliott, A. H., Fayetteville Jeff. Med. Coll., 1919	1919	1921
Goiney, John W., Fayetteville	1921	1921
Highsmith, J. D., Fayetteville Jeff. Med. Coll., 1918	1918	1920
Highsmith, J. F., Fayetteville Jeff. Med. Coll., 1889	1889	1893
Highsmith, Seavy, Fayetteville Univ. Med. Coll. of Va., 1901	1901	1902
Jordan, Wm. S., Fayetteville Univ. of N. C., Med. Dept., 1906	1906	1907
Lilly, James M., Fayetteville Univ. Coll. of Med., Va., 1903	1903	1904
McFadyen, O. L., Fayetteville N. C. Med. Coll., 1912	1912	1920
McGougan, J. V., Fayetteville Univ. of Md., and Coll. of P. and S., Balt., 1893	1893	1909
McKay, W. P., Fayetteville Tulane Univ., 1916	1916	1921
McKethan, D. G., Fayetteville Univ. Coll. of Med., Va., 1899	1899	1899
McKethan, John Alex., Fayetteville N. C. Med. Coll., 1901	1901	1903
McNeill, Jas. Wm., Fayetteville (Hon.) Bellevue Med. Coll., 1876	1876	1876
Pittman, R. L., Fayetteville Univ. of Md., 1906	1910	1912
Rainey, W. T., Fayetteville Univ. Coll. of Med., Va., 1913	1913	1916
Smoot, Morris L., Fayetteville Univ. Coll. of Med., Va., 1903	1903	1904
Vann, J. R., Jr., Fayetteville Jeff. Med. Coll., 1917	1917	1920
Verdery, W. C., Fayetteville Univ. of Ga., 1914	1914	1921
West, T. M., Fayetteville Univ. of Md., 1908	1910	1910

CURRITUCK COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, J. M. Newbern, Jarvisburg Georgetown Univ., Washington, 1898	1899	1900
Secretary, W. T. Griggs, Poplar Branch Univ. of Va., 1906	1896	1901
Cowell, Will, Shawboro Ky. School of Med., 1893	1909	1911
Gatling, Oscar C., Knots Island Univ. of Md., 1910	1910	1918
Mann, S. M., Moyock P. and S., Balt., 1895	1895	1904

DAVIDSON COUNTY SOCIETY

President, Charles A. Julian, Thomasville Louisville Med. Coll., 1888	1891	1892
Secretary, Raymond V. Yokeley, R. 1, Lexington N. C. Med. Coll., 1911	1911	1912
Anderson, Abel, Denton	.....	1904
Buchanan, E. J., Lexington Univ. of Md., 1892	1892	1900
Clodfelter, C. M., Lexington P. and S., Balt., 1905	1905	1907
Hill, David Joseph, Lexington P. and S., Balt., 1893	1893	1894
Hill, W. Lee, R. 4, Lexington P. and S., Balt., 1893	1893	1904
Hobgood, J. E., Thomasville Jeff. Med. Coll., Phila., 1907	1907	1917
Mock, Frank Lowe, R. 3, Lexington N. C. Med. Coll., Charlotte, 1908	1908	1911
Peacock, James Walter, Thomasville Tulane Univ., La., 1901	1901	1905
Sharpe, C. R., Lexington Jeff. Med. Coll., 1914	1914	1917
Smith, J. A., Lexington N. C. Med. Coll., Charlotte, 1915	1915	1917
Terry, J. R., Lexington Univ. of Louisville, 1911	1912	1912
Vestal, Willis Jasper, Lexington P. and S., Balt., 1883	1885	1893
York, Alexander Arthur, Southmont Chattanooga Med. Coll., 1907	1907	1909
Zimmerman, Robert U., R. 4, Lexington N. C. Med. Coll., Charlotte, 1901	1901	1904

DAVIE COUNTY SOCIETY

President, W. C. Martin, Mocksville P. and S., Balt., 1888	1888	1904
Secretary, Andrew B. Byerly, Cooleemee U. C. of M., Va., 1896	1896	1904
Nicholson, C. R., Harmony N. C. Med. Coll., 1912	1912	1916
Rodwell, John W., Mocksville P. and S., Balt., 1895	1895	1896

DUPLIN COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, John W. Carroll, Wallace Univ. of Md., 1903	1903	1903
Secretary, R. C. Williams, Wallace Univ. of Md., 1912	1915	1916
Carr, Ransom Lee, Rose Hill Balt. Med. Coll., 1907	1908	1909
Casteen, Kenark, Kenansville Univ. and Bellevue Hosp. Med. Coll., N. Y., 1919	1919	1921
Crocker, Wm. D., Warsaw Louisville Med. Coll., 1897	1896	1904
Farrior, J. W., Warsaw Univ. of Pa., 1912	1913	1917
Kennedy, George W., Beulaville Univ. Coll., of Med., Richmond, 1898	1897	1909
Landen, Jefferson F., Chinquapin Univ. Coll. of Med., Va., 1905	1905	1907
Maxwell, J. F., Pink Hill		1917
Quinn, Robert F., Magnolia N. C. Med. Coll., 1912	1913	1916
Robinson, J. D., Wallace Univ. of Md., 1916	1915	1917
Williams, James Marcus, Warsaw Univ. of Md., 1902	1902	1902

DURHAM-ORANGE SOCIETY

President, B. U. Brooks, Durham Univ. of Md., 1905	1905	1907
Secretary, *J. A. Speed, Durham Jeff. Med. Coll., 1914	1914	1916
Abernathy, E. A., Chapel Hill Med. Coll. of Va., 1901	1904	1914
Adams, C. A., Durham P. and S., Balt., 1892	1892	1901
Adkins, M. T., Durham Johns Hopkins, 1907	1915	1916
Bane, R. H., Durham Univ. of Md., 1914	1914	1920
Bitting, Numa Duncan, Durham Jeff. Med. Coll., 1907	1907	1909
Boddie, Needham P., Durham (Hon.) P. and S., Balt., 1883	1883	1883
Booker, Lyle Steele, Durham Univ. Coll. of Med., Va., 1908	1910	1911
Boone, W. H., Durham N. C. Med. Coll., 1902	1902	1910
Bowling, Edwin Holt, Durham P. and S., Balt., 1891	1890	1908
Bullitt, J. B., Chapel Hill Univ. of Va., 1897	1914	1915
Cheatham, Archibald, Durham (Hon.) Univ. of Md., 1888	1888	1888
Coppridge, W. M., Durham Jeff. Med. Coll., 1918	1919	1920
Darden, O. B., Durham Med. Coll. of Va., 1918	1918	1920

Name and Address	*Licensed*	*Joined State Society*
Fassett, Burton W., Durham	1899	1909
Balt. Med. Coll., 1898		
Felts, Robert L., Durham	1901	1909
Univ. of Md., 1898		
Hayes, R. B., Hillsboro	1910	1917
Univ. of Md., 1906		
Hicks, Calvin S., Durham	1904	1904
Univ. of Md., 1904		
Hicks, Wm. N., Durham (Hon.)	1879	1879
Med. Coll. of Va., 1864		
Holloway, O. W., Durham	1901	1917
Med. Coll. of Va., 1901		
Holloway, Robert Lee West Durham	1893	1901
Med. Coll. of Va., 1893		
Johnson, Norman M., Durham (Hon.)	1879	1879
P. and S., Balt., 1877		
Kerns, T. C., Durham	1911	1912
Univ. of Pa., 1911		
Lawson, R. B., Chapel Hill	1915	1920
Univ. of Md., 1902		
Lloyd, B. B., Chapel Hill	1909	1914
Univ. of N. C., 1909		
Lyon, E. H., Bahama	1904	1912
Univ. of Md., 1904		
McPherson, S. D., Durham	1903	1912
Univ. of Md., 1903		
MacNider, Wm. deB., Chapel Hill	1902	1903
Univ. of N. C., 1902		
Manning, I. H., Chapel Hill	1899	1901
Long Island Coll. Hosp., N. Y., 1897		
Manning, John Moore, Durham	1897	1901
Bellevue Med. Coll., 1897		
Nichols, Rhodes E., Gorman	1890	1904
Va. Med. Coll., Richmond		
Olive, Wm. Wade, Durham	1907	1909
Univ. of Md., 1906		
Roberson, Foy, Durham	1909	1912
Jeff. Med. Coll., 1909		
Roberson, Mike, Durham	1912	1913
Med. Coll. of Va., 1912		
Ross, Geo. H., Durham	1904	1904
Univ. of Tenn., 1899		
Sterrett, J. R., West Durham	1913	1916
Univ. Coll. of Med., Va., 1908		
Sweaney, John, West Durham	1888	1916
P. and S., Balt., 1886		
Sweaney, H. M., Durham	1919	1920
Univ. of Penn., 1919		
Watkins, G. T., Durham	1915	1917
Jeff. Med. Coll., 1915		

EDGECOMBE COUNTY SOCIETY

President, Amos Monroe Wooten, Pinetops	1910	1911
Univ. of N. C., 1910		
Secretary, C. L. Outland, Tarboro	1917	1920
Med. Coll. of Va., 1917		
Anderson, G. M., Tarboro		1921
Baker, Julian Meridith, Tarboro (Hon.)	1879	1879
Univ. of Md., 1879		

Name and Address	*Licensed*	*Joined State Society*
Barber, Y. M., Macclesfield	1917	1918
Univ. of Md., 1914		
Bass, Spencer P., Tarboro	1907	1909
Univ. of Va., 1906		
Green, Wm. W., Tarboro	1908	1910
Univ. of N. C., 1908		
Harrell, Samuel N., Tarboro	1897	1904
Univ. of Md., 1897		
Jones, E. E., Elm City		1920
P. and S., Balt., 1883; Balt. Med. Coll., 1884		
Norfleet, L. E., Tarboro	1890	1920
Columbia Univ. Coll. of P. and S., N. Y., 1888		
Raby, J. G., Tarboro	1911	1912
Univ. Coll. of Med., Va., 1911		
Royster, Thomas H., Tarboro	1908	1914
Univ. of Md., Richmond, 1908		
Speight, Sr., R. H., Whitakers (Hon.)	1875	1875
Univ. of Md., 1870		
Staton, L. L., Tarboro	1875	1875
Univ. of N. Y., 1870		
Thigpen, William J., Tarboro	1900	1901
Jeff. Med. Coll., Phila., 1900		
Williams, T. G., Conetoe	1910	1916
Med. Coll. of Va., 1909		

FORSYTH COUNTY SOCIETY

President, Vann McKee Long, Winston-Salem	1906	1911
N. C. Med. Coll., 1906		
Secretary, S. W. Hurdle, Winston-Salem	1915	1916
Jeff. Med. Coll., 1914		
Belton, J. F., Winston-Salem	1914	1916
Univ. of Pa., 1914		
Benbow, J. T., Winston-Salem	1910	1920
N. C. Med. Coll., 1910		
Bowers, M. A., Winston-Salem	1911	1914
Tulane Univ., 1911		
Brown, W. T., Winston-Salem	1918	1921
Univ. of Tenn., 1913		
Bulla, A. C., Winston-Salem	1915	1918
N. C. Med. Coll., Charlotte, 1915		
Butler, Leroy J., Winston-Salem	1920	1921
Med. Coll. of Va., 1920		
Bynum, John, Winston-Salem	1892	1896
Univ. of N. Y., 1892		
Bynum, Wade H., Germantown	1900	1900
Univ. Coll. of Med., Va., 1900		
Carlton, Romulus L., Winston-Salem	1906	1908
Univ. of Md., 1906		
Cooke, G. C., Winston-Salem	1919	1920
Univ. of Md., 1918		
Craig, S. Douglas, Winston-Salem	1908	1912
Tulane Univ., 1908		
Dalton, David N., Winston-Salem (Hon.)	1885	1885
Univ. of N. Y., 1881		
Dalton, Wm. N., Winston-Salem	1904	1905
N. C. Med. Coll., 1904		
Daugherty, J. E., Winston-Salem	1910	1920
Barnes Med. Coll., 1910		

Name and Address	*Licensed*	*Joined State Society*
Davis, J. M., Winston-Salem	1913	1920
Columbia Univ., 1913		
Davis, Thomas W., Winston-Salem	1900	1900
S. C. Med. Coll., 1898		
Dowdy, J. Ernest, Winston-Salem	1909	1910
Univ. of Md., 1910		
Dudley, W. Brown, Winston-Salem	1914	1921
Med. Coll. of Va., 1914		
Edwards, Albert D., Winston-Salem	1904	1905
Univ. of Md., 1903		
Fearrington, Joseph Payton, Winston-Salem	1887	1904
Univ. of Md., 1887		
Flippin, James M., Winston-Salem	1884	1910
P. and S., Balt., 1884		
Flynt, S. S., Rural Hall	1890	1907
P. and S., Balt., 1889		
Gray, Eugene Price, Winston-Salem	1907	1909
Johns Hopkins Med. School, 1906		
Grimes, W. L., Winston-Salem	1910	1915
Johns Hopkins Univ., 1910		
Hammock, J. C., Walkertown	1890	1908
P. and S., Balt., 1889		
Hanes, F. M., Winston-Salem	1908	1917
Johns Hopkins, 1908		
Izlar, H. L., Winston-Salem	1916	1916
N. C. Med. Coll., 1915		
Jennings, R. G., Winston-Salem	1913	1920
N. C. Med. Coll., 1913		
Johnson, Wingate M., Winston-Salem	1908	1911
Jeff. Med. Coll., 1908		
Johnston, W. W., Winston-Salem	1913	1920
N. C. Med. Coll., 1913		
Jones, Beverley N., Winston-Salem	1915	1921
Med. Coll. of Va., 1915		
Kapp, Henry Herman, Winston-Salem	1901	1904
Jeff. Med. Coll., 1901		
Keiger, O. R., Winston-Salem	1911	1914
Univ. Coll. of Med., Va., 1911		
Kerr, James Edwin, Winston-Salem	1898	1898
Univ. of Md., 1897		
Lawrence, Charles S., Winston-Salem	1908	1911
George Washington Univ., 1908		
Linville, Aaron Y., Winston-Salem	1889	1896
Univ. of N. Y., 1889		
Lockett, Everett A., Winston-Salem	1903	1904
Univ. of Penn., 1902		
Lott, H. S., Winston-Salem	1887	1887
Univ. of Ga., 1884		
Mimms, C. W., Winston-Salem	1916	1917
Vanderbilt Univ.; Univ. of Louisville, Ky., 1914		
Moore, R. A., Winston-Salem	1911	1917
N. C. Med. Coll., Charlotte, 1911		
Munt, H. F., Winston-Salem	1914	1916
Med. Coll. of Va., 1911		
Paddison, Jr., Jno. Robt., Kernersville	1902	1913
Univ. of Md., 1902		
Pepper, John Kerr, Winston-Salem	1908	1908
P. and S., Balt., 1907		
Perkins, J. R., Winston-Salem	1904	1907
Med. Coll. of Va., 1904		

Name and Address	*Licensed*	*Joined State Society*
Pfohl, Samuel F., Winston-Salem Univ. of Penn., 1894	1898	1898
Redfern, T. C., Winston-Salem L. I. Med. Coll. Hosp., 1916	1920	1921
Rousseau, J. P., Winston-Salem Univ. of Md., 1918	1919	1920
Salmons, L. R., Winston-Salem N. C. Med. Coll., 1912	1912	1916
Schallert, P. O., Winston-Salem Univ. of Ill., Med. Dept., 1904	1904	1912
Schaub, O. P., Winston-Salem Balt. Med. Coll., 1898	1898	1898
Slate, John S., Winston-Salem Univ. Coll. of Med., Richmond, Va., 1900	1899	1920
Spainhour, Ellis H., Winston-Salem Balt. Med. Coll., 1898	1898	1898
Spencer, Wm. O., Winston-Salem Jeff. Med. Coll., 1891	1891	1894
Sterling, W. C., Winston-Salem Vanderbilt Med. School, 1917	1917	1921
Strickland, Edward F., Bethania Univ. of N. Y., 1887	1887	1893
Summers, Charles L., Baltimore, Md. Univ. of Md., and Coll. of P. and S., 1887	1891	1896
Thompson, Edg. S., Winston-Salem Univ. of N. Y., 1919	1919	1921
Valk, A. deT., Winston-Salem Johns Hopkins Med. School, 1910	1907	1914
Wall, R. L., Winston-Salem Jeff. Med. Coll., 1906	1907	1914
Whittington, James B., Winston-Salem N. C. Med. Coll., 1911	1911	1913
Wyatt, Wortham, Winston-Salem Univ. of Pa., 1913	1913	1916

FRANKLIN COUNTY SOCIETY

President, B. C. Johnson, Bunn Univ. of N. C., 1909	1910	1910
Secretary, Henry H. Johnson, Louisburg Coll. of P. and S., Balt., 1915	1918	1919
Beam, H. M., Wood Columbia Univ., N. Y., 1918	1918	1919
Burt, S. P., Louisburg Coll. of P. and S., Balt., 1896	1896	1904
Harris, John H., Franklinton Bellevue Med. Coll., 1886	1886	1904
Henderson, R. B., Franklinton Univ. of Md., 1887	1887	1904
Malone, James E., Louisburg Bellevue Med. Coll., 1875	1885	1904
Newell, J. O., Louisburg P. and S., Balt., 1912	1910	1912
Simpson, W. P., Louisburg Univ. of Va., 1903	1904	1920
Yarborough, R. F., Louisburg Columbia Univ., D. C., 1898	1899	1899

GASTON COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, J. W. Campbell, Gastonia P. and S., Balt., 1893	1919	1920
Secretary, C. J. McCombs, Gastonia N. C. Med. Coll., 1905	1905	1908
Adams, Charles E., Gastonia Univ. of Md., 1878	1885	1904
Anders, McT. G., Gastonia Med. Coll. of Va., 1901	1902	1904
Anderson, James A., Gastonia Univ. of Georgia, 1899	1909	1909
Anthony, J. E., Kings Mountain Univ. of Tenn., 1911	1911	1911
Blair, J. L., Gastonia Emory Univ., 1915	1920	1921
Boyles, M. F., Dallas N. C. Med. Coll., 1917	1917	1920
Clinton, Roland S., Gastonia Univ. of Md., 1914	1914	1920
Davis, W. W., Belmont Ky. School of Med., 1885	1885	1904
Eddleman, Hall M., Gastonia Ky. School of Med., 1886	1886	1904
Garrison, D. A., Gastonia Louisville Med. Coll., 1896	1896	1900
Glenn, Henry F., Gastonia P. and S., Atlanta, 1900	1900	1904
Glenn, Lucius N., Gastonia Univ. of Md., 1897	1897	1904
Hood, J. Sidney B., Kings Mountain Jeff. Med. Coll., 1907	1907	1910
Houser, W. H., Cherryville N. C. Med. Coll., 1900	1900	1904
Hunter, W. B., Gastonia Univ. of Pa., 1911	1911	1920
Jenkins, John H., Gastonia Ky. School of Med., Louisville, 1887	1888	1904
Johnson, Lee, Gastonia Jeff. Med. Coll., 1911	1911	1918
Lyday, C. E., Gastonia Atlanta School of Med., 1910	1910	1920
McAdams, C. R., Belmont N. C. Med. Coll., 1912	1912	1916
McCoy, Thomas Marshall, Mt. Holly N. C. Med. Coll., 1905	1906	1910
McLean, Charles Erwin, Gastonia (From Belmont, R. F. D. 1 N. C. Med. Coll., 1903	1903	1905
Martin, L. P., Gastonia Jeff. Med. Coll., 1920	1920	1921
Miller, R. C., Mayworth N. C. Med. Coll., 1909	1918	1919
Moore, B. D., Mt. Holly Med. Coll. of Va., 1915	1915	1921
Patrick, L. N., Gastonia Univ. of Md., 1910	1910	1913
Patrick, Jr., Geo. R., Bessemer City (From Lowell, R. F. D. 1 Univ. of Md., 1916	1916	1920
Pressley, J. M., Belmont N. C. Med. Coll., 1915	1915	1920

Name and Address	*Licensed*	*Joined State Society*
Pugh, Charles H., Gastonia	1910	1913
N. C. Med. Coll., 1910		
Quickel, Thomas C., Gastonia	1899	1904
Tulane Univ., 1900		
Reid, James W., Lowell	1909	1910
Jeff. Med. Coll., 1909		
Rhyne, Robert Edgar, Gastonia	1907	1908
N. C. Med. Coll., 1907		
Robinson, Frank, Lowell	1878	1904
N. C. Med. Coll., 1878		
Sloan, James M., Gastonia	1891	1904
Louisville Med. Coll., 1891		
Stewart, J. J., Mt. Holly	1904	1908
N. C. Med. Coll., 1904		
Wilkins, Samuel A., Dallas	1903	1903
Univ. of Ky., 1902		
Wilson, Frank G., Gastonia	1896	1899
Univ. of Md., 1896		

GRANVILLE COUNTY SOCIETY

President, Joseph A. Morris, Oxford, R. F. D.	1893	1899
Vanderbilt Univ., 1890		
Secretary, W. B. Bullock, Oxford	1892	1893
Bellevue Med. Coll., 1892		
Booth, Samuel D., Oxford (Hon.)	1885	1885
Med. Coll. of Va., 1867		
Booth, Thomas L., Oxford	1885	1893
Med. Coll. of S. C., 1883		
Cannaday, Sam H., Oxford	1895	1904
Univ. of Va., 1887		
Daniel, N. C., Oxford	1895	1902
N. C. Med. Coll., 1895		
Hardee, Parrott R., Stem	1885	1906
P. and S., Balt., 1885		
Hays, B. K., Oxford	1894	1897
Univ. Coll. of Med., Va., 1894		
Meadows, Elijah B., Oxford, R. F. D.	1901	1901
Univ. Coll. of Med., Va., 1901		
Sikes, G. T., Creedmoor (Hon.)	1884	1884
Univ. of Md., 1883		
Taylor, Wm. L., Stovall	1900	1901
Med. Coll. of Va., 1900		
Thomas, Wm. N., Oxford	1911	1914
Med. Coll. of Va., 1911		
Thompson, Joseph, Creedmoor	1908	1912
Ky. Univ., Louisville, 1904		
Watkins, Geo. S., Oxford	1900	1908
Univ. Coll. of Med., Va., 1900		

GREENE COUNTY SOCIETY

President, John L. Carroll, Hookerton	1905	1909
Louisville Med. Coll., 1905		
Secretary, J. H. Harper Snow Hill	1906	1907
Jeff. Med. Coll., 1905		
Edwards, G. C., Hookerton (Hon.)	1883	1883
Bellevue Md. Coll., 1883		
Marlowe, W. A., Walstonburg	1919	1921
Jeff. Med. Coll., 1919		

Name and Address	*Licensed*	*Joined State Society*
Murphy, W. B., Snow Hill	1903	1905
Univ. Coll. of Med., Va., 1903		
Thigpen, F. L., Hookerton	1917	1919
Jeff. Med. Coll., 1917		
Whittington, Wm. W., Snow Hill	1895	1902
Louisville Med. Coll., 1895		

GUILFORD COUNTY SOCIETY

President, John T. Burrus, High Point	1898	1898
Balt. Med. Coll., 1901		
Secretary, F. J. Pate, Greensboro	1908	1915
Univ. of Md.; Coll. of P. and S., Balt., 1908		
Alderman, Ernest H., Greensboro	1921	1921
Univ. of Va., 1921		
Ashworth, W. C., Greensboro	1892	1904
P. and S., Balt., 1892		
Austin, J. W., High Point	1910	1913
Jeff. Med. Coll., 1910		
Aydlette, H. T., Greensboro	1895	1907
Univ. of Va., 1894		
Banner, Chas. W., Greensboro	1899	1901
Univ. of Md., 1899		
Battle, John T. J., Greensboro (Hon.)	1884	1890
P. and S., Balt., 1884		
Beall, Wm. P., Greensboro (Hon.)	1879	1879
Jeff. Med. Coll., 1879		
Berry, John, Greensboro	1908	1920
Jeff. Med. Coll., 1908		
Best, Benj. W., Greensboro	1884	1920
Coll. of P. and S., Balt., 1884		
Bowman, H. P., Greensboro	1894	1905
Univ. of Tenn., 1894		
Boyles, J. H., Greensboro	1903	1904
P. and S., Balt., 1903		
Braddy, Wade Hampton, Greensboro	1909	1913
Univ. of N. C., 1909		
Brockman, Harry L., Greensboro		1921
Univ. of Pa., 1917		
Coe, Samuel S., High Point	1912	1913
Univ. Coll. of Med., Va., 1911		
Cole, Walter F., Greensboro	1909	1910
Johns Hopkins, 1909		
Dees, Ralph Erastus, Greensboro	1908	1909
Univ. of Md., 1906		
Dees, Rigdon O., Greensboro	1906	1908
Univ. of Md., 1906		
Dick, Julius Vance, Gibsonville	1907	1908
Univ. of N. C., 1907		
Dodson, H. H., Greensboro (Hon.)	1885	1887
Med. Coll., of Va., 1882		
Flagge, Phillip W., Jamestown	1919	1919
Washington Univ., St. Louis, 1902		
Fortune, Alex. F., Greensboro	1900	1904
Univ. Coll. of Med., Va., 1900		
Fox, M. F., Guilford College (Hon.)	1885	1885
P. and S., Balt., 1881		
Gilmer, Charles S., Greensboro, R. F. D. 6	1891	1894
Univ. of N. Y., 1891		
Glascock, J. H., Greensboro	1896	1907
Woman's Med. Coll., N. Y., 1892		

Name and Address	*Licensed*	*Joined State Society*
Gove, Anna M., Greensboro	1894	1896
Woman's Med. Coll., N. Y., 1892		
Grayson, C. S., High Point	1907	1908
George Washington Univ., 1906		
Greenwood, A. B., Greensboro	1916	1918
Johns Hopkins, 1916		
Harrison, Edmund, Greensboro	1900	1900
Univ. of Md., 1896		
Boyce, Henry T., Greensboro	1920	1921
Columbia Univ., Coll. P. and S., N. Y., 1916		
Hiatt, H. B., High Point	1907	1910
Univ. of Md., 1907		
Holt, D. W., Revolution Sta., Greensboro	1918	1920
Jeff. Med. Coll., 1918		
Holt, Wm. T., McLeansville	1890	1896
Univ. of Tenn., 1890		
Hyatt, Fred C., Greensboro	1907	1912
Jeff. Med. Coll., 1907		
Jackson, Walter Leo, High Point	1912	1913
N. C. Med. Coll., 1912		
Jarboe, Parron, Greensboro	1906	1907
Georgetown Univ., 1905		
Jones, Jr., W. M., Greensboro	1903	1903
Univ. of Md., 1903		
Knight, Wm. P., Greensboro	1898	1898
Balt. Med. Coll., 1898		
Long, John Wesley, Greensboro (Hon.)	1884	1884
Vanderbilt Univ., 1884		
Lyon, B. R., Greensboro	1915	1920
Columbia Univ., N. Y., 1915		
McCain, Hugh W., High Point	1909	1911
Jeff. Med. Coll., 1909		
Mann, I. T., High Point	1912	1915
Jeff. Med. Coll., 1912		
Meadows, W. J., Greensboro	1889	1904
Med. Coll. of Alabama, 1894		
Michaux, Edward R., Greensboro	1889	1904
Univ. of N. Y., 1889		
Miles, May S., Greensboro	1904	1905
Laura Mem. Woman's Coll. of Med., Cinn., Ohio, 1898		
Moore, Charles E., Greensboro	1909	1910
Jeff. Med. Coll., 1907		
Moore, W. B., Summerfield	1893	1921
P. and S., Balt., 1893		
Moseley, Charles W., Greensboro	1893	1896
Balt. Med. Coll., 1893		
Norman, Geo. W., Pomona	1896	1904
Balt. Med. Coll., 1896		
Ogburn, H. H., Greensboro	1913	1914
Johns Hopkins Univ., 1913		
Reaves, C. R., Greensboro	1914	1914
Univ. of the South, 1906		
Reaves, Robert G., Greensboro	1915	1920
Univ. of Va., 1915		
Reaves, W. P., Greensboro	1905	1907
Univ. of the South, 1903		
Reitzel, Claude E., High Point	1902	1902
Atlanta Coll. of P. and S., 1902		
Roberson, Charles, Greensboro	1897	1901
Long Island Coll. Hosp., 1897		

Name and Address	*Licensed*	*Joined State Society*
Roberson, George B., Greensboro	1915	1917
Med. Coll. of S. C., 1915		
Schoonover, R. A., Greensboro	1906	1912
Univ. of Md., 1905		
Sharpe, F. A., Greensboro	1916	1920
Univ. of Pa., 1916		
Shugart, F. C., High Point	1915	1920
Columbia Univ. Coll. of P. and S., 1915		
Simmons, L. L., Greensboro	1919	1919
Univ. of Tenn., 1893; Vanderbilt Univ., 1899; Tulane, 1917		
Smith, Alick T., Greensboro	1910	1913
Med. Coll. of Va., 1908		
Smith, Owen, High Point	1905	1917
Jeff. Med. Coll., 1904		
Spoon, A. O., Denim	1908	1910
N. C. Med. Coll., 1908		
Stanton, D. A., High Point	1887	1891
Vanderbilt Univ., 1887		
Starr, H. F., Greensboro	1916	1917
Jeff. Med. Coll., 1916		
Stockard, J. K., Greensboro		1919
Tankersley, J. W., Greensboro	1906	1907
Jeff. Med. Coll., 1906		
Taylor, F. R., High Point	1913	1915
Univ. of Pa., 1913		
Thomas, J. G., Greensboro	1915	1920
Med. Coll. of Va., 1915		
Turner, J. P., Greensboro	1897	1904
Univ. of Md., 1896		
Walker, J. B., Gibsonville	1914	1916
Med. Coll. of Va., 1914		
Whitaker, A. C., Julian	1903	1908
Univ. of Tenn., 1903		
Williams, B. B., Greensboro	1886	1893
Univ. of Md., 1886		
Williams, John A., Greensboro	1898	1898
Univ. of Va., 1898		
Williams, John D., Guilford Station	1898	1898
Vanderbilt Univ., 1898		
Wilson, Albert R., Greensboro (Hon.)	1882	1882
Jeff. Med. Coll., 1882		
Wolfe, H. C., Greensboro	1917	1920
Med. Coll. of Va., 1917		
Wolff, D. R., Greensboro	1918	1920
Jeff. Med. Coll., 1918		
Woodruff, Fred. G., High Point	1919	1919
Med. Coll. of Va., 1917		

HALIFAX COUNTY SOCIETY

President, Henry B. Furguson, Halifax	1882	1904
Jeff. Med. Coll., 1882		
Secretary, P. C. Carter, Weldon	1916	1920
Univ. of Md., 1916		
Beckwith, R. P., Rosemary	1913	1916
Univ. of Pa., 1911		
Clark, H. I., Scotland Neck	1878	1920
Univ. of Md., 1878		
Flemming, W. L., Enfield	1910	1916
Univ. of N. C., 1910		

Name and Address	*Licensed*	*Joined State Society*
Jarman, F. G., Roanoke Rapids	1914	1916
Univ. Coll. of Med., Va., 1911		
Justice, L. H., Littleton	1920	1920
Med. Coll. of Va., 1916		
Lassiter, H. G., Weldon	1918	1920
Jeff. Med. Coll., 1918		
Leggett, Kenelm, Hobgood (Hon.)	1885	1885
Ky. School of Med., 1884		
Leggett, V. W., Hobgood	1916	1920
Univ. of Louisville, 1913		
Long, T. W. M., Roanoke Rapids	1909	1900
Univ. Coll. of Med., Va., 1908		
Martin, J. W., Roanoke Rapids	1917	1920
Univ. Coll. of Med., Va., 1916		
Nicholson, B. M., Enfield	1910	1913
Univ. Coll. of Med., Va., 1910		
Palmer, Horace, Hollister	1912	1920
Atlanta School of Med., 1912		
Parker, F. M., Enfield	1907	1920
Univ. Coll. of Med., 1897		
Patchin, D. F., Rosemary		1917
Univ. and Bellevue Hosp. Med. Coll., N. Y., 1913		
Picot, L. J., Littleton (Hon.)	1875	1875
Jeff. Med. Coll., 1875		
Pierce, S. B., Weldon	1897	1906
Bellevue Hosp., 1897		
Putney, W. R., Littleton	1919	1920
Univ. Coll. of Med., 1911		
Smith, O. F., Scotland Neck	1899	1904
Univ. Coll. of Med., Va., 1899		
Suiter, W. G., Weldon	1917	1920
Med. Coll. of Va., 1918		
Thigpin, H. G., Scotland Neck	1917	1920
Jeff. Med. Coll., 1917		
Whitaker, F. C., Enfield	1911	1919
Maryland Med. Coll., 1911		
Zollicoffer, Augustus R., Weldon	1885	1890
Univ. of Pa., 1875		
Zollicoffer, D. B., Weldon	1881	1904
P. and S., Md., 1881		

HARNETT COUNTY SOCIETY

President,		
Secretary, Wallace E. Coltrane, Dunn	1913	1917
Med. Coll. of Va., 1912		
Arnold, Laurie J., Lillington	1905	1907
N. C., Med. Coll., 1905		
Barefoot, M. L., Dunn, R. F. D., 6	1911	1912
Univ. of Md., 1911		
Halford, Jos. W., Lillington	1905	1905
Columbia Univ., 1904		
Hicks, Isham Faison, Dunn	1902	1904
N. C. Med. Coll., 1902		
Highsmith, Charles, Dunn	1898	1898
Balt. Med. Coll., 1898		
Holt, Wm. P., Duke	1895	1901
Jeff. Med. Coll., 1895		
McKay, Joseph F., Buies Creek	1885	1904
S. C. Med. Coll., 1884		

Name and Address	*Licensed*	*Joined State Society*
McLean, John W., Godwin	1902	1906
N. C., Med. Coll., 1902		
Melvin, Wayman C., Duke, R. F. D. 2	1900	1905
Univ. Coll. of Med., Va., 1900		
Petree, P. A., Dunn		1920
Jeff. Med. Coll., 1914		
Riddle N. C., Lillington	1919	1921
Jeff. Med. Coll., 1919		
Roberts, H. C., Coats	1912	1913
Tulane Univ., 1912		
Sexton, C. Hector, Dunn	1890	1904
Univ. of Md., 1890		
Warren, R. L., Dunn	1911	1912
Tulane Univ., 1911		

HAYWOOD COUNTY SOCIETY

President,		
Secretary, J. R. McCracken, Waynesville	1902	1903
N. C. Med. Coll., Charlotte, 1902		
Abel, J. F., Waynesville	1893	1899
Univ. of Balt., 1892		
Allen, Rufus L., Waynesville	1885	1889
Univ. of Md., 1885		
Johnson, W. C., Canton	1912	1817
Tulane Univ. of Louisiana, 1912		
Montgomery, K. E., Waynesville	1920	1920
Univ. of Louisville, Ky., 1917		
Reynolds, T. F., Canton	1904	1920
N. C. Med. Coll., 1904		
Russell, Jesse M., Canton	1911	1912
Univ. of Nashville, 1911		
Stringfield, Samuel L., Sunburst	1905	1907
Jeff. Med. Coll., 1905		
Stringfield, Thomas, Waynesville	1898	1899
Vanderbilt Univ., 1898		
Way, J. Howell, Waynesville (Hon.)	1885	1887
Vanderbilt Univ., 1886		

HENDERSON-POLK

President, Guy E. Dixson, Hendersonville	1903	1903
P. and S., St. Louis, 1903		
Secretary, R. C. Sample, Hendersonville	1915	1919
Univ. of Pa., 1915		
Brown, J. S., Hendersonville	1894	1895
Northwestern Univ., 1893		
Cliff, B. F., Hendersonville	1914	1915
Geo. Washington Univ., 1908		
Drafts, Andrew B., Hendersonville	1899	1903
Univ. of Va., 1896		
Edgerton, Jas. L., Hendersonville (Hon.)	1885	1890
Univ. of Md., 1877		
Grady, Wm. E., Tryon	1895	1899
Univ. of Md. and P. and S., Baltimore, 1894		
Greenwood, S. E., Fletcher	1903	1904
Tenn. Med. Coll., 1902		
Howe, Wm. B. White, Jr., Hendersonville	1907	1908
Med. Coll. of S. C., 1906		

Name and Address	*Licensed*	*Joined State Society*
Kirk, W. R., Hendersonville	1901	1903
Central Univ. of Ky., 1890		
Morse, Lucius B., Hendersonville	1901	1911
Chicago Homeopathic Coll., 1897		
Salley, E. McQueen, Tryon	1905	1908
Univ. of Md., 1905		
Sumner, T. W., Fletcher	1910	1911
Jeff. Med. Coll., Phila., 1910		

HERTFORD COUNTY

President, R. H. Gary, Murfreesboro	1885	1904
Med. Coll. of P. and S., 1881		
Secretary, W. B. Pollard, Winton	1903	1905
Univ. of Pa., 1899		
Burbage, Thos. I., Como	1885	1890
Memphis Hosp. Med. Coll., 1883		
Futrell, L. M., Murfreesboro	1914	1918
Va. Med. Coll., 1914		
Green, Arthur W., Ahoskie	1904	1905
Univ. Coll. of Med., Richmond, 1904		
Harrell, Geo. N., Murfreesboro	1907	1909
Univ. Coll. of Med., Richmond, 1907		
Mitchell, Jesse H., Ahoskie	1885	1904
Univ. of Balt., 1879		
Mitchell, Paul H., Ahoskie	1907	1908
Univ. Coll. of Med., Richmond, 1907		
Powell, Jesse A., Harrellsville	1908	1909
Coll. of P. and S., Balt., 1907		
Walker, L. K., Ahoskie	1911	1917
Univ. of Md., 1911		

HOKE COUNTY

President, R. A. McBrayer, Sanatorium	1916	1917
Univ. of Pa., 1916		
Secretary, L. B. McBrayer, Sanatorium	1891	1899
Univ. of Md. and Coll. of P. and S., Balt., 1891		
Brown, G. W., Raeford	1900	1900
Ky. School of Med., Louisville, 1898		
Dickson, A. P., Raeford (deceased)		1904
Univ. of N. Y., 1878		
Graham, Geo. A., Raeford	1885	1904
Univ. of N. Y., 1876		
Juat, Francis, Raeford (deceased)	1910	1910
Univ. of N. Y., 1886		
McCain, P. P., Sanatorium	1914	1917
Univ. of Md. and Coll. of P. and S., Balt., 1911		
Wilkins, R. B., Raeford	1913	1915
N. C. Med. Coll., 1915		

HYDE COUNTY

President,		
Secretary,		
Harris, Arthur Graham, Fairfield	1907	1908
Univ. of the South, 1905		

IREDELL-ALEX.

Name and Address	Licensed	Joined State Society
President, R. S. McElwee, Statesville	1909	1910
Univ. of Md., 1909		
Secretary, J. E. McLaughlin, Statesville	1886	1900
Univ. of Md., 1886		
Adams, M. R., Statesville (Hon.)	1884	1884
Univ. of Md., 1878		
Anderson, Thos. E., Statesville (Hon.)	1878	1879
Jeff. Med. Coll., Pa., 1878		
Bell, A. E., Mooresville	1897	1904
Univ. of Md., and Coll. of P. and S., 1897		
Carpenter, F. A., Statesville	1906	1906
N. C. Med. Coll., 1906		
Crouch, T. D., Stony Point	1909	1915
N. C. Med. Coll., 1909; Univ. of Md., 1910		
Davis, J. W., Statesville	1913	1915
Univ. of Pa., 1913		
Easley, P. S., Statesville	1906	1913
N. C. Med. Coll., Charlotte; Jeff. Med. Coll., Phila., 1908		
Gilmore, W. D., New Bern	1903	1904
Univ. of N. C., 1903		
Goode, T. V., Statesville	1912	1916
Univ. Coll. of Med., Va., 1912		
Jurney, P. C., Turnersburg	1901	1904
Med. Coll. of Va., 1901		
Little, E. E., Statesville	1912	1915
N. C. Med. Coll., 1912		
Long, H. F., Statesville	1892	1893
Univ. of Md., 1892		
Rhyne, S. A., Mooresville	1915	1920
N. C. Med. Coll., 1915		
Sharpe, F. L., Statesville	1904	1905
Univ. of N. C., 1904		
Sherrill, C. L., Statesville	1914	1915
N. C. Med. Coll., 1914		
Tally, J. S., Troutman	1910	1917
Univ. of N. C., 1909		
Taylor, G. W., Mooresville	1906	1917
N. C. Med. Coll., Charlotte, 1906		

JACKSON COUNTY

President, C. Z. Candler, Sylva	1901	1904
P and S., Atlanta, 1901		
Secretary, D. D. Hooper, Sylva	1905	1905
Univ. Coll. of Med., Va, 1905		
Bryson, E. J., Cullowhee	1914	1915
Bennett, Chicago, Ill., 1913		
Nichols, A. A., Sylva		1904
Univ. of Nashville, Med. Dept., 1898		
Nichols, A. S., Sylva	1907	1913
Lincoln Memorial Univ., Med. Dept., Knoxville, 1905		
Wilkes, Grover, Sylva	1916	1920
N. C. Med. Coll., Charlotte, 1916		

JOHNSTON COUNTY

President, G. S. Coleman, Kenly	1907	1909
Med. Coll. of Va., 1907		
Secretary, A. G. Woodard, Princeton	1907	1909
N. C. Med. Coll., 1907		

Name and Address	*Licensed*	*Joined State Society*
Bynum, C. M., Princeton (From Aurora, Beaufort)	1914	1918
Med. Coll. of Va., 1914		
Grady, J. C., Kenly	1887	1890
P. and S., Balt., 1887		
Griffin, J. A., Clayton (Hon.)		1890
P. and S., Balt., 1881		
Griffin, Thos. A., Clayton	1912	1913
Univ. of Md., 1912		
Hinnant, Milford, Kenly	1912	1913
Jeff. Med. Coll., 1912		
Hocutt, B. A., Clayton	1906	1908
Univ. of N. C., School of Med., 1906		
Hooks, Thel, Smithfield	1901	1903
Med. Coll. of Va., 1901		
McLemore, G. A., R. F. D., Clayton	1906	1908
Univ. of N. C., 1900		
Martin, J. F., Benson	1905	1918
N. C. Med. Coll., 1905		
Noble, R. J., Selma (Hon.)	1878	1878
Ky. Med. School, 1875		
Oliver, A. S., Benson	1914	1919
Jeff. Med. Coll., 1914		
Parker, G. E., Benson	1888	1904
Coll. of P. and S., Balt., 1886		
Person, J. B., Selma	1897	1900
Med. Coll. of Balt., (Va.?) 1897		
Rose, A. H., Smithfield	1906	1907
Univ. of N. C., 1906		
Stanley, John H., Four Oaks	1904	1906
Univ. of N. C., 1904		
Tyner, C. V., Smithfield	1916	1919
Univ. and Bellevue Hosp. Med. Coll., New York, 1916		
Utley, H. H., Benson	1901	1901
Balt. Med. Coll., 1901		
Vick, Geo. D., Selma	1906	1907
Jeff. Med. Coll., 1906		
Wharton, L. D., Smithfield	1893	1894
Tulane Univ., 1893		
Woodard, G. B., Kenly	1915	1916
Med. Coll. of Va., 1915		
Young, J. J., Clayton	1896	1904
P. and S., Balt., 1897		

LEE COUNTY

President, E. M. McIver, Jonesboro	1908	1911
Univ. of N. C., 1908		
Secretary, Lynn McIver, Sanford	1902	1902
Univ. of N. C., 1901		
Matthews, M. L., Sanford	1903	1904
Univ. of N. C., 1903		
Monroe, J. P., Sanford	1901	1905
P. and S., Balt., 1901		
Monroe, W. A., Sanford (Hon.)	1886	1890
Univ. of Md., 1886		
Scott, Charles L., Sanford	1899	1916
Univ. of Md., 1897		
Snipes, E. P., Jonesboro	1890	1890
Vanderbilt Univ., 1890		
Watson, Leon, Broadway	1900	1904
N. C. Med. Coll., 1900		

LENOIR COUNTY

Name and Address	Licensed	Joined State Society
President,		
Secretary, C. P. Mangum, Kinston Jeff. Med. Coll., 1918	1918	1920
Adams, L. C., La Grange N. C. Med. Coll.	1903	1921
Hardy, Ira M., Kinston Med. Coll. of Va., 1901	1902	1902
Hargrove, W. F., Kinston Univ. of Md., 1901	1901	1900
Hyatt, A. L., Kinston Univ. of Md., 1910	1910	1921
McNairy, C. Banks, Kinston P. and S., Balt., 1893	1893	1905
Monk, H. D., Trenton Med. Coll. of Va., 1896	1896	1904
Moseley, Z. V., Kinston Univ. Coll. of Med., 1913	1913	1914
Parrott, A. DeK., Kinston Univ. Coll. of Med., Va., 1906	1906	1908
Parrott, J. M., Kinston Tulane Univ., 1895	1895	1896
Parrott, M. C., Kinston Tulane Univ., 1917	1917	1919
Parrott, W. T., Kinston Tulane Univ., 1895	1895	1901
Perry, V. P., Kinston Med. Coll. of Va., 1916	1916	1917
Tull, Henry, Kinston (Hon.) Univ. of Pa., School of Med., 1876	1876	1876
West, C. F., Kinston Univ. of Pa., 1917	1917	1920
Weyher, V. E., Kinston Vienna, Austria, 1869		1919
Whitaker, F. A., Kinston Univ. of Pa., 1875	1871	1907
Whitaker, F. S., Kinston Balt. Med. Coll., 1913	1913	1914
Whitaker, R. A., Kinston (Hon.) P. and S., Balt., 1885	1885	1885

LINCOLN COUNTY

President, H. N. Abernathy, Denver Louisville Med. Coll., 1894	1894	1899
Secretary, W. F. Elliott, Lincolnton Medico-Chir. Coll., 1916	1916	1917
Crowell, L. A., Lincolnton Balt. Med. Coll., 1892	1892	1898
Edwards, F. D., Belwood Atlanta Med. Coll., 1914	1916	1919
Gamble, J. F., Lincolnton Univ. of Tenn., 1903	1915	1919
Gamble, J. F., Lincolnton Univ. of Nashville, Tenn., 1911	1911	1912
Hoover, C. H., Crouse Balt. Med. Coll., 1903	1903	1903
Jacocks, W. P., Columbia, Ceylon Univ. of Pa., 1911	1911	1913
Killian, R. B., Lincolnton Louisville Med. Coll., 1885	1885	1904

Name and Address	*Licensed*	*Joined State Society*
Kiser, W. C., Reepsville	1889	1904
Southern Med. Coll., Ga., 1889		
Lee, R. E., Lincolnton	1896	1918
Univ. of Md., 1896		
Saine, J. W., Lincolnton	1891	1904
Louisville Med. Coll., 1891		
Shellum, O. W., Stanly	1909	1913
N. C. Med. Coll., 1909		
Thompson, C. D., Lincolnton	1901	1904
Univ. of Tenn., 1901		

McDOWELL COUNTY

President, J. F. Jonas, Marion	1903	1903
P. and S., Balt., 1893		
Secretary, J. B. Johnson, Old Fort	1914	1914
Univ. of Louisville, Med. Dept., 1905		
Ashworth, B. L., Marion	1893	1900
P. and S., Balt., 1893		
Kirby, G. S., Marion	1896	1903
Univ. Coll. of Med., Va., 1897		
McIntosh, D. M., Old Fort	1907	1909
Med. Coll. of Va., 1904		

MACON-CLAY COUNTY

President, Fred L. Siler, Franklin	1898	1903
Univ. of Nashville, 1897		
Secretary, W. A. Rogers, Franklin	1898	1898
Univ. of Nashville, 1898		
Fouts, J. H., Franklin	1895	1918
Vanderbilt Univ., 1895		
Horsley, H. T., Franklin	1915	1918
Balt. Med. Coll., 1907		
Killian, P. B., Hayesville	1909	1909
Atlanta Coll. of P. and S., 1900		
Lapham, Mary E., Highlands	1906	1906
Women's Med. Coll. of Pa., 1900		
Lyle, S. H., Franklin	1881	1882
Univ. of Nashville, 1883		

MADISON COUNTY

President, W. F. Robinson, Mars Hill	1903	1904
Vanderbilt Univ., 1896		
Secretary, Frank Roberts, Marshall	1892	1902
Jeff. Coll., Phila., 1892		
Baird, J. H., Mars Hill	1885	188[illegible]
Baird, J. W., Mars Hill	1908	1909
Lincoln Mem. Univ., Knoxville, 1901		
Burnett, I. E., Mars Hill	1905	1904
Lincoln Mem. Univ., Knoxville, 1901		
English, I. L., Faust	1887	1904
Holden, E. C., White Rock	1920	1921
L. I. Coll. Hosp., 1911		
Moore, J. N., Marshall	1905	1909
Univ. of N. C., 1905		
Packard, G. H., White Rock	1915	1915
P. and S., Balt., 1898		

Name and Address	*Licensed*	*Joined State Society*
Peck, E. J., Hot Springs Vanderbilt Univ., 1879; Univ. of Tenn., 1880		1903
Sams, W. A., Marshall Lincoln Memorial Univ., 1911	1920	1920
Tilson, J. C., Marshall Lincoln Memorial Univ., 1885	1885	1904

MARTIN COUNTY

President, W. H. Harrell, Jr., Williamston Univ. of Pa., 1918	1918	1919
Secretary, Wm. E. Warren, Williamston Nongrad Univ., N. Y.	1893	1894
Hargrove, R. H., Robersonville (Hon.) Univ. of Md., 1877	1879	1879
Knight, J. B. H., Williamston (Hon., 1920) P. and S., Balt., 1885	1885	1890
Long, Benj. L., Hamilton (Hon.) Univ. of Md., 1881	1883	1885
Long, Edgar, Hamilton Univ. of Md., 1909	1909	1910
Nelson, R. J., Robersonville Louisville Med. Coll., 1890	1890	1893
Pittman, E. E., Oak City Med. Coll. of Va., 1919	1919	1920
Rhodes, J. S., Williamston Med. Coll. of Va., 1906	1906	1907
Saunders, J. H., Williamston Univ. Coll. of Med., Va., 1905	1905	1909
Smithwick, J. E., Jamesville Med. Coll. of Va., 1897	1897	1904
Ward, J. E., Robersonville Univ. of Md., 1904	1904	1905
Ward, V. A., Robersonville Jeff. Med. Coll., Phila., 1908	1908	1914
York, H. B., Williamston P. and S., Balt., 1906	1906	1907

MECKLENBURG COUNTY

President, J. P. Munroe, Charlotte (Hon.) Univ. of Va., 1885	1886	1890
Secretary, J. Lester Ranson, Charlotte N. C. Med. Coll., 1911	1911	1912
Alexander, Annie L., Charlotte (Hon.) Women's Med. Coll., Pa., 1884	1885	1890
Alexander, M. Janet, Montgomery, India Women's Med. Coll. of Pa., 1917	1917	1918
Alexander, J. R., Charlotte Univ. of Md., 1894	1894	1899
Allan, William, Charlotte P. and S., Balt., 1906	1906	1914
Ashe, J. R., Charlotte Columbia Univ., 1911	1915	1915
Austin, D. R., Charlotte Jeff. Med. Coll., 1917	1917	1918
Austin, Frederick De Costa, Charlotte N. C. Med. Coll., 1907	1907	1908
Austin, J. A., Charlotte Jeff. Med. Coll., Phila., 1882	1882	1904

Name and Address	*Licensed*	*Joined State Society*
Barrett, H. P., Charlotte	1917	1919
Univ. of Louisville, 1908		
Barron, A. A., Charlotte	1909	1910
Vanderbilt Univ., 1909		
Blalock, B. K., Charlotte	1913	1917
Univ. of Md., 1913		
Bost, T. C., Charlotte	1920	1921
Geo. Washington Univ., 1915		
Boyette, E. C., Charlotte	1898	1906
Balt. Med. Coll., 1893		
Brenizer, A. G., Jr., Charlotte	1910	1911
Johns Hopkins and Univ. of Heidelberg, 1908		
Caldwell, J. H., Charlotte	1914	1914
N. C. Med. Coll., 1914		
Clifford, J. S., Charlotte	1907	1908
Geo. Washington Univ., 1906		
Craven, Thos., Huntersville	1917	1918
Jeff. Med. Coll., 1917		
Craven, W. W., Huntersville	1904	1904
Univ. of Md., 1903		
Crowell, A. J., Charlotte	1892	1894
Univ. of Md., 1893		
Davidson, J. E. S., Charlotte	1898	1898
Univ. of Md., 1894		
De. Armond, J. McC., Charlotte (Hon.)	1886	1887
Univ. of Md., 1886		
Donnelly, J., Charlotte	1905	1918
N. C. Univ., 1905		
Elliott, J. A., Charlotte	1919	1920
Univ. of Mich., 1914		
Faison, I. W., Charlotte (Hon.)	1878	1878
Bellevue Med. Coll., 1878		
Y. W. Faison, Charlotte	1910	1912
Harvard Univ., 1910		
Fetner, L. M., Charlotte	1913	1915
N. C. Med. Coll., 1913		
Gallant, R. M., Charlotte	1915	1916
N. C. Med. Coll., 1915		
Gibbon, Jas., Charlotte	1902	1921
Jeff. Med. Coll., 1916		
Gibbon, R. L., Charlotte (Hon.)	1887	1888
Jeff. Med. Coll., 1888		
Graham, Wm. A., Charlotte (Hon.)	1890	1890
P. and S., N. Y., 1888 (1920)		
Hand, E. H., Pineville	1907	1913
N. C. Med. Coll., Charlotte, 1907		
Henderson, S. McD., Charlotte	1894	1904
Univ. of Md., 1894		
Herron, A. M., Charlotte	1884	1884
Med. Coll. of S. C., 1882		
Hipp, E. R., Charlotte	1920	1921
Univ. of Va., 1918		
Hockett, L. E., Charlotte	1917	1919
N. C. Med. Coll., 1917		
Houser, O. J., Charlotte	1914	1916
N. C. Med. Coll., 1914		
Hovis, L. W., Charlotte	1904	1906
N. C. Med. Coll., 1904		
Hunter, L. W., Charlotte, R. 1, (Hon.)	1880	1880
Bellevue Hosp., N. Y., 1875		

Name and Address	*Licensed*	*Joined State Society*
Hunter, Myers, Charlotte Georgetown Univ., 1905	1906	1908
Hunter, M. C., Huntersville Coll. of Phy. and Sur., Balt., 1882	1882	1918
Irwin, Hammer C., Pocatello, Idaho Univ. of Md., 1912	1914	1916
Irwin, J. R., Charlotte (Hon.) Univ. of Md., 1879	1882	1882
Johnston, J. G., Charlotte Med. Dept., Vanderbilt Univ., 1899	1913	1916
Justice, Z. K., Davidson N. C. Med. Coll., 1903	1917	1919
Kennedy, J. P., Charlotte Jeff. Med. Coll., 1915	1915	1920
Keiger, J. A., Raleigh Univ. of Va., 1916		
King, Parks M., Charlotte Bellevue Med. Coll., 1902	1902	1904
Lafferty, R. H., Charlotte N. C. Med. Coll., 1906	1906	1908
Leinbach, R. F., Charlotte Univ. of Pa., 1907	1907	1910
Linney, R. Z., Charlotte Georgetown Univ., 1901	1914	1918
McKay, Hamilton W., Charlotte Jeff. Med. Coll., 1910	1911	1913
McLaughlin, C. S., Charlotte Univ. of Md., 1896	1896	1903
McPhaul, Wilbur A., Charlotte Univ. of Tenn., 1904	1905	1907
McConnell, J. W., Davidson Univ. of Md., 1907	1908	1909
Martin, W. J., Davidson Univ. of Va., 1890	1891	1919
Matheson, J. P., Charlotte N. C. Med. Coll., 1902	1902	1907
Matthews, V. M., Charlotte Univ. of Pa., 1918	1918	1921
Mills, C. H. C., Charlotte Univ. of Md., 1897	1900	1919
Misenheimer, C. A., Charlotte (Hon.) N. Y. Univ., Med. Coll., 1882	1882	1882
Montgomery, J. C., Charlotte N. Y. Univ., Med Coll., 1891	1891	1895
Moore, A. W., Charlotte Univ. of Va., 1901; Univ. of N. Y., 1902	1912	1913
Moore, Baxter S., Charlotte Univ. of Va., 1901	1905	1905
Moore, Oren, Charlotte N. C. Med. Coll., 1911	1911	1912
Myers, Alonzo, Charlotte N. C. Med. Coll., 1911	1911	1920
Myers, J. Q., Charlotte N. C. Med. Coll., 1904	1904	1910
Nalle, B. C., Charlotte Univ. of Va., 1903	1905	1905
Newell, Leone B., Charlotte Univ. of N. C., 1905	1905	1908
Nisbet, Heath, Charlotte Harvard Med. Dept., 1917	1917	1920

Name and Address	*Licensed*	*Joined State Society*
Nisbet, W. O., Charlotte	1889	1889
Med. Coll. of S. C., 1889		
Northington, J. M., Charlotte	1909	1909
Med. Coll. of Va., 1905		
Parsons, W. H., Charlotte	1918	1919
N. C. Med. Coll., 1916		
Patterson, Reid, Charlotte	1912	1913
N. C. Med. Coll., 1912		
Peeler, C. N., Charlotte	1906	1908
N. C. Med. Coll., 1906		
Petrie, R. W., Charlotte	1903	1903
Univ. of Md., 1903		
Petteway, G. H., Charlotte	1913	1914
N. C. Med. Coll., 1913		
Pharr, Wm. W., Charlotte (Hon.)	1883	1887
P. and S., Balt., 1882		
Phillips, C. C., Charlotte	1912	1917
N. C. Med. Coll., Charlotte, 1912		
Pressley, G. W., Charlotte	1895	1896
Jeff. Med. Coll., Phila., 1892		
Query, R. Z., Charlotte, R. F. D.	1907	1908
Univ. Coll. of Med., Va., 1907		
Reid, T. N., Matthews	1891	1904
N. Y. Univ. Med. Coll., 1891		
Ross, Otho B., Charlotte	1901	1912
Univ. of Pa., 1901		
Schruggs, W. M., Charlotte	1914	1920
Univ. of Pa., 1914		
Shull, John R., Charlotte	1910	1913
Univ. of Pa., 1910		
Simmons, John O., Charlotte	1906	1908
Grant Univ., 1894		
Skinner, L. C., Chadwick Station, Charlotte		1902
Sloan, H. L., Charlotte	1913	1914
Univ. of Pa., 1911		
Smith, T. A., Charlotte	1917	1921
N. C. Med. Coll., 1917		
Squires, Claude, Charlotte		1921
Strong, C. M., Charlotte	1898	1898
Univ. of Md., 1888		
Strong, Wm. M., Charlotte	1904	1905
N. C. Med. Coll., Charlotte, 1904		
Taylor, H. C., Chadwick Station, Charlotte	1910	1915
Tenn. Med., 1886		
Thompson, S. R., Charlotte	1914	1915
N. C. Med. Coll., 1914		
Todd, L. C., Charlotte	1920	1920
Univ. of Miss., 1918		
Townsend, M. L., Charlotte	1912	1919
Curtis-Physio. Med. Inst., Indiana, 1906		
Tucker, J. H., Charlotte	1899	1911
Univ. of Va., 1899		
Tydeman, F. W. L., Wood River, Ill.	1912	1918
N. C. Med. Coll., Charlotte, 1912		
Wakefield, H. A., Charlotte	1908	1911
N. C. Med. Coll., 1908		
Walker, L. D., Charlotte	1917	1919
Med. Coll. of Va., Richmond, 1908		

Name and Address	*Licensed*	*Joined State Society*
Whisnant, A. M., Charlotte P. and S., Balt., 1893	1893	1899
Whitley, A. W., Matthews, R. 19	1908	1919
Wingate, G. C., Charlotte N. C. Med. Coll., 1914	1915	1919
Wishart, Wm. E., Charlotte N. C. Med. Coll., 1911	1911	1911
Withers, G. L., Charlotte N. C. Med. Coll., 1914	1914	1918
Witherspoon, B. J., Charlotte S. C. Med. Coll., 1894	1900	1911
Wright, T. H., Charlotte Univ. of Va., 1901	1904	1910

MITCHELL-WATAUGA COUNTY

President,		
Secretary,		
Bingham, G. D., Sugar Grove Univ. of Tenn., 1906; Lincoln Memorial Univ., Knoxville, 1908		1920
Bradshaw, I. W., Relief Lincoln Memorial Univ. of Tenn., 1911		1909
Butt, R. B., Bakersville Emory Univ. School of Med., Atlanta, 1920	1920	1921
Butt, V. R., Bakersville Jeff. Med. Coll., 1886		1907
Gouge, A. E., Bakersville N. C. Med. Coll., 1917	1917	1920
Jones, J. W., Boone Chattanooga Med. Coll., 1900	1902	1904
Peterson, C. A., Spruce Pines N. C. Med. Coll., 1907	1907	1908
Peterson, J. M., Spruce Pine Lincoln Memorial Univ. of Tenn., 1902	1918	1921

MONTGOMERY COUNTY

President, A. F. Thompson, Troy Med. Coll. of Indiana, 1895	1895	1904
Secretary, Charles Daligny, Troy Military Med. School, Paris, 1878	1885	1891
Boyles, A. C., Troy Univ. of Md., 1887	1887	1912
Coppedge, Neilson P., Biscoe Univ. of N. C., 1903	1903	1910
Dameron, E. L., Star N. C. Med. Coll., 1911	1911	1913
Ingram, C. B., Mt. Gilead Jeff. Med. Coll., Phila., 1886	1886	1902
McMillan, J. M., Candor Atlanta P. and S., 1909	1909	1911
Nicholson, N. G., Jr., Mt. Gilead N. C. Med. Coll., 1917	1917	1920
Rankin, P. R., Mt. Gilead N. C. Med. Coll., 1910	1910	1912
Shamburger, J. B., Star Univ. of Md., 1890	1890	1892

MOORE COUNTY

Name and Address	*Licensed*	*Joined State Society*
President, M. E. Street, Glendon	1893	1902
P. and S., Balt., 1893		
Secretary, A. McN. Blair, Southern Pines	1905	1906
Univ. of N. Y., 1897		
Achron, J. W., Pinebluff	1899	1899
Med. School of Me., 1887; Bellevue Med. Coll., 1889		
Blue, A. McN., Carthage	1916	1917
Tulane Univ., 1915		
Bowman, H. E., Aberdeen	1904	1919
N. C. Med. Coll., 1905		
Davis, J. F., High Falls	1912	1906
Med. Coll. of Va., 1912		
Grier, C. T., Carthage	1912	1913
N. C. Med. Coll.		
McDonald, A. A., Jackson Springs	1905	1912
N. C. Med. Coll., 1905		
McDuffie, W. N., Hemp		1921
Atlanta Med. Coll., Dept. Emory Univ., 1916		
McLeod, A. H., Aberdeen	1896	1904
Balt. Med. Coll., 1896		
McLeod, Gilbert M., Carthage	1885	1904
Univ. of Md., 1882		
Marr, M. W., Pinehurst	1907	1915
Tufts Coll. Med. School, Boston, 1907		
Mudgett, W. C., Southern Pines	1908	1911
Univ. of Md., 1903		
Rosser, R. G., Vass	1909	1917
N. C. Med. Coll., Charlotte, 1909		
Shields, Henry B., Carthage	1887	1904
Atlanta Med. Coll., 1882		
Swett, Wm. P., Southern Pines	1893	1901
Univ. of Vermont, 1876		
Thompson, Fred, Pine Bluff	1912	1914
Harvard Univ., 1888		

NASH COUNTY

President, M. I. Fleming, Rocky Mount	1906	1919
Jeff. Med. Coll., 1905		
Secretary, C. T. Smith, Rocky Mount	1918	1920
Univ. of Pa., 1918		
Battle, Ivan Proctor, Rocky Mount	1889	1914
Univ. of Md., 1889		
Boice, E. S., Rocky Mount	1914	1915
Univ. of Pa., 1909		
Brantley, Hassell, Spring Hope	1888	1901
Jeff. Med. Coll., Phila., 1888		
Coppedge, T. O., Nashville	1909	1917
Coll. of P. and S., Balt., 1908		
Deans, A. W., Battleboro	1915	1917
Med. Coll. of Va., 1915		
Flowers, C. A., Rocky Mount	1907	1910
P. and S., Balt., 1905		
Hines, E. R., Rocky Mount	1916	1917
Med. Coll. of S. C., 1916		
Knowles, L. M., Rocky Mount	1918	1920
Univ. of Pa., 1918		
Kornegay, L. W., Rocky Mount	1906	1914
N. C. Med. Coll., 1906		

Name and Address	*Licensed*	*Joined State Society*
Lane, J. L., Rocky Mount	1906	1914
N. C. Med. Coll., 1906		
Large, H. L., Rocky Mount	1918	1918
Med. Coll. of Va., 1917		
Looney, J. J. W., Rocky Mount	1919	1919
Univ. of Va., 1919		
Marriott, H. B. Battleboro	1883	1904
Mo. Med. Coll., St. Louis, 1883		
Martin, J. H., Battleboro	1904	1916
Univ. of Nashville, 1903		
Matthews, T. A., Castalia	1891	1893
Univ. of Md., 1890		
Noell, R. H., Rocky Mount	1916	1920
Univ. of Md., 1916		
Perry, E. M., Rocky Mount	1907	1920
P. and S., Balt., 1907		
Speight, J. A., Rocky Mount	1906	1916
Jeff. Med. Coll., Phila., 1906		
Speight, J. P., Rocky Mount	1906	1917
Jeff. Med. Coll., Phila., 1906		
Staley, S. W., Rocky Mount	1901	1914
Med. Coll. of S. C., 1901		
Quillan, E. B., Rocky Mount	1906	1914
Univ. of Md., 1904		
Whitehead, J. P., Rocky Mount	1899	1914
Univ. of Md., 1899		
Willis, B. C., Rocky Mount	1915	1916
Med. Coll. of Va., 1909		
Winstead, J. A., Nashville	1916	1916
N. C. Med. Coll., 1914		

NEWHANOVER COUNTY

President, J. B. Cranmer, Wilmington	1905	1907
Univ. of N. C., 1905		
Secretary, Ralph H. Davis, Wilmington	1920	1920
Geo. Washington Univ., 1917		
Bellamy, R. H., Wilmington	1902	1902
Jeff. Med. Coll., Phila., 1902		
Bolles, C. P., Jr., Wilmington	1908	1909
Univ. of Va., 1897		
Bowdoin, G. W., Wilmington	1914	1916
Med. Coll. of Va., 1914		
Brown, Jas., Wilmington	1919	1921
Univ. of Md., 1919		
Bullock, E. S., Wilmington	1911	1911
Univ. of Md., 1911		
Cathell, J. E., Wilmington	1902	1906
Univ. of Md., 1899		
Codington, H. A., Wilmington	1915	1917
Univ. of Md., 1911		
Croom, G. H., Wilmington	1909	1916
N. C. Med. Coll., 1909		
Crouch, A. McR., Wilmington	1916	1918
Jeff. Med. Coll., Phila., 1916		
Dickson, J. G., Wilmington	1918	1921
Univ. of Pa., 1918		
Evans, J. E., Wilmington	1916	1916
Univ. of Md., 1916		
Farthing, L. E., Wilmington	1906	1913
Univ. of N. C., 1906		

Name and Address	*Licensed*	*Joined State Society*
Galloway, W. C., Wilmington (Hon.)	1880	1880
Washington School of Med., 1874		
Graham, B. R., Wilmington	1895	1916
Univ. of Va., 1895		
Green, T. M., Wilmington	1900	1904
Univ. of Md., 1900		
Harriss, A. H., Wilmington	1892	1894
Medico- Churugical, Phila., 1893		
Hart, E. R., Wilmington	1901	1918
Univ. of Md., 1901		
Honnet, J. H., Wilmington	1901	1904
P. and S., Balt., 1896		
Hooper, J. W., Wilmington	1912	1919
Univ. of Md., 1909		
Jewett, R. D., Wilmington (Hon.)	1890	1890
Univ. of Va., 1888		
Johnson, G. W., Wilmington	1920	1921
Univ. of Pa., 1920		
Koonce, S. E., Wilmington	1896	1900
P. and S., Balt., 1896		
Legwin, J. B., Wilmington	1913	1916
Tulane Univ. of La., 1911		
Love, W. J., Wilmington (Hon.)	1861	1874
S. C. Med. Coll., 1861		
McDonald, A. D., Wilmington (Hon.)	1870	1879
Washington Univ. School of Med., 1877		
McMillan, W. D., Wilmington (Hon.)	1885	1892
Univ. of Md., 1868		
Mebane, W. C., Wilmington	1905	1916
N. C. Med. Coll., 1905		
Miller, J. F., Wilmington	1915	1919
Med. Chi., Phila., 1906		
Moore, J. A., Wilmington	1918	1921
Univ. of Pa., 1918		
Moore, W. H., Wilmington	1910	1911
Jeff. Med. Coll., Phila., 1910		
Murphy, J. G., Wilmington	1903	1905
Univ. of Louisville, 1903		
Parker, J. R., Wilmington	1917	1917
Med. Coll. of Va., 1917		
Peterson, W. C., Wilmington	1920	1921
Univ. of Pa., 1916		
Robertson, J. F., Wilmington	1913	1916
Univ. of Pa., 191:		
Schonwald, J. T., Wilmington (Hon.)	1880	1881
Long Island Med. Coll., 1879		
Shaw, Colin, Wilmington (From Onslow)	1911	1917
N. C. Med. Coll., 1911		
Sidbury, J. B., Wilmington	1915	1916
Columbia Univ., N. Y., 1912		
Sloan, D. B., Wilmington		1920
Slocum, R. B., Wilmington	1907	1907
Johns Hopkins, 1905		
Smith, S. A., Wilmington	1907	1921
N. C. Med. Coll., 1907		
Wassell, J. C., Wilmington	1900	1900
Univ. of Md., 1900		
Williams, L. P., Wilmington	1918	1921
Bellevue Med. Coll., 1918		

Name and Address	Licensed	Society Joined State
Wood, E. J., Wilmington	1903	1903
Univ. of Pa., 1902		

NORTHAMPTON COUNTY

President, C. P. Parker, Seaboard	1912	1916
Univ. Coll. of Med., Va., 1915		
Secretary, P. G. Parker, Jackson	1916	1917
Med. Coll. of Va., Richmond, 1916		
Bolton, Mahlon, Rich Square (Hon.)	1885	1885
Jeff. Med. Coll., Phila., 1885		
Boone, S. B., Jackson		1921
Brittle, P. C., Conway	1907	1910
Univ. Coll. of Med., Va., 1907		
Lewis, H. W., Jackson (Hon.)	1885	1887
Univ. of N. Y., 1877		
Lister, J. L., Jackson	1896	1909
Med. Coll. of Va., 1896		
McDaniel, L. E., Lasker	1915	1916
Univ. of Md., 1911		
Parker, C. G., Woodland	1907	1913
Univ. of Va., 1907		
Parker, W. R., Woodland	1916	1919
Med. Coll. of Va., 1916		
Vaughn, J. C., Rich Square	1915	1916
Med. Coll. of Va., 1915		

ONSLOW COUNTY

President,		
Secretary, E. L. Cox, Jacksonville	1892	1892
Univ. of Md., 1889		
Bryan, L. D., Sneads Ferry	1910	1911
Tulane, 1910		
Hammond, A. F., Pollocksville	1903	1905
Univ. Coll. of Medicine, 1903		
Henderson, J. P., Swansboro		1921
McCuiston, A. M., Richlands	1911	1917
N. C. Med. Coll., 1911		
Sutton, C. W., Richlands	1905	1907
Tulane Med. Coll., 1905		
Thompson, Cyrus, Jacksonville	1885	1905
Univ. of Pa., 1878		

PAMLICO COUNTY

President, D. A. Dees, Bayboro	1903	1905
Balt. Med. Coll., 1903		
Secretary, J. J. Purdy, Oriential	1914	1915
Med. Coll. of Va., 1900		
Attmore, G. S., Stonewall (Hon.)	1870	1872
Washington Univ. School of Med., 1870		
McClees, J. E., Oriential	1919	1920
Med. Coll. of Va., 1916		
McCotter, St. Elmo, Bayboro	1908	1909
P. and S., Atlanta, 1908		
Woodard, E. B., Bayboro	1920	1921
Chicago Coll. Med. and Surg., 1919		

PASQUOTANK-CAMDEN-DARE COUNTIES

Name and Address	*Licensed*	*Joined State Society*
President,		
Secretary, W. W. Sawyer, Elizabeth City Univ. of Md., 1903	1903	1904
Davis, R. B., Weeksville Med. Coll. of Va., Richmond, 1915		1917
Fearing Isaiah, Elizabeth City P. and S., Baltimore, 1896	1896	1904
Fearing, Zenas, Elizabeth City Va. Univ. Coll. of Med., 1901	1901	1914
Griggs, J. B., Elizabeth City Univ. of Md., 1892	1892	1904
Hoggard, W. A., Woodville Univ. Coll. of Med., Va., 1907	1907	1910
Kendrick, R. L., Elizabeth City Univ. of Va., 1913	1913	1915
Lister, E. W., Weeksville Med. Coll. of Va., 1896	1896	1916
Newby, G. E., Hertford Jeff. Med. Coll., Phila., 1900	1901	1916
Peters, W. A., Elizabeth City Med. Coll. of Va., 1915	1915	1916
Saliba, John, Elizabeth City Univ. of Edinburgh, Scotland, 1893	1914	1914
Walker, H. D., Elizabeth City Univ. of Md., 1902	1902	1902
Williams, C. B., Elizabeth City Univ. Coll. of Med., Va., 1903	1903	1907

PENDER COUNTY

President,		
Secretary,		
Taylor, W. I., Burgaw N. C. Med. Coll., 1902	1904	1905

PERSON COUNTY

President, G. W. Gentry, Timberlake Univ. of N. C., 1910	1910	1911
Secretary, A. F. Nichols, Roxboro Univ. of N. C., 1909	1908	1909
Baynes, R. S., Hurdle Mills P. and S., Balt., 1881	1881	1904
Bradsher, W. A., Roxboro Univ. of Md., 1904	1904	1905
Long, D. T., Hurdle Mills Emory Univ. of Med., Atlanta, 1917	1917	1919
Long, W. T., Roxboro Balt. Med. Coll., 1905	1905	1907
Love, B. E., Roxboro Univ. of Md., 1904	1904	1905
Merritt, J. H., R. 2, Woodsdale Univ. of N. C., 1906	1907	1908
Swann, J. F., Semora P. and S., Balt., 1898	1898	1905

Name and Address	*Licensed*	*Joined State Society*
Thaxton, B. A., Roxboro Jeff. Med. Coll., 1914	1914	1916
Teague, R. J., Roxboro Univ. of Md., and P. and S., Balt., 1890	1890	1902

PITT COUNTY

President, C. J. Ellen, Greenville Univ. Coll. of Richmond, 1911	1911	1919
Secretary, P. J. Chester, Greenville N. C. Med. Coll., 1913	1913	1920
Basnight, T. G., Stokes Univ. of Md., 1905	1905	1907
Beasley, E. B., Fountain Univ. of Pa., School of Med., Phila., 1911	1911	1915
Dawson, W. W., Grifton Univ. of Md., 1897	1897	1900
Dixon, G. G., Ayden Med. Coll. of Va., Richmond, 1915	1915	1917
Dixon, Joseph, Ayden Med. Coll. of Va., 1894	1893	1895
Dixon, W. H., Ayden Univ. of Va., 1901	1901	1903
Frizzell, M. T., Ayden Univ. of Md., 1907	1907	1909
Garrenton, Cecil, Bethel Med. Coll. of Va., Richmond, 1908	1908	1915
Hemmingway, J. D., Bethel N. C. Med. Coll., 1915	1917	1917
Jones, C. M. Grimesland Univ. of Md. and Coll. of P. and S., Balt., 1892	1892	1895
Laughinghouse, Chas. O'H., Greenville Univ. of Pa., 1893	1893	1894
Morrill, D. S., Farmville Balt. Med. Coll., 1897	1897	1903
Morrill, Jenness, Falkland Univ. of Md., 1888	1888	1900
Moseley, H. P., Farmville Univ. Coll. of Med., Richmond, 1912	1912	1915
Nobles, J. E., Greenville (Hon.) Jeff. Med. Coll., 1899	1899	1902
Pace, K. B., Greenville Jeff. Med. Coll., 1914	1914	1920
Summerell, G. H., Ayden Med. Coll., Va., 1915	1917	1919
Skinner, L. C., Greenville Univ. of Md., 1901	1901	1903
Smith, Joseph, Greenville		1920
Whitfield, W. C., Grifton (Hon.) Univ. of Md., 1884	1884	1884

RANDOLPH COUNTY

President, Francis E. Asubry, Asheboro (Hon.) S. C. Med. Coll., 1876	1899	1904
Secretary, Wm. James Moore, Asheboro P. and S., Balt., 1893	1893	1901
Craven, F. C., Ramseur Univ. of Md., 1913	1913	1914

Name and Address	*Licensed*	*Joined State Society*
Fox, D. L., Randleman	1899	1904
Univ. Vanderbilt, 1894		
Fox, Thomas I., Franklinville	1899	1904
Vanderbilt Univ., 1894		
Hayworth, C. A., Asheboro	1913	1914
Univ. of Md., 1902		
Hayworth, Roy W., Asheboro	1918	1920
Jeff. Med. Coll., 1918		
Helms, T. L., Seagrove	1915	1917
N. C. Med., Coll., 1914		
Hubbard, C. C., Farmer	1890	1904
Jeff. Med. Coll., Phila., 1888		
Hunter, J. V., Asheboro	1898	1905
Univ. of Louisville, 1898		
Phillips, C. H., Fullers	1893	1911
Balt. Univ. School of Med., 1892		
Redding, Alex. H., Cedar Falls	1881	1904
Coll. of P. and S., Balt., 1887		
Sumner, Wm. I., Randleman	1893	1904
Univ. of Tenn., 1893		
Tate, C. S., Ramseur	1896	1914
Balt. Med. Coll., 1893		
Wilkerson, C. E., Randleman	1908	1909
Univ. of Nashville, Tenn., Med. Dept., 1907		

RICHMOND COUNTY

President, W. D. James, Hamlet	1908	1915
Jeff. Med. Coll., Phila., 1908		
Secretary, A. C. Everett, Rockingham	1897	1903
Univ. of Md., 1897		
Garrett, F. B., Rockingham	1912	1914
N. C. Med. Coll., 1912		
Garrett, F. J., Rockingham	1887	1904
Univ. of Md., 1889		
Hatcher, M. A., Hamlet	1920	1921
Med. Coll. of Va., 1918		
Howell, W. L. R. F. D., Ellerbe	1910	1911
N. C. Med. Coll., 1910		
James, Albert, Hamlet	1918	1921
Jeff. Med. Coll., Phila., 1918		
Kinsman, H. F., Hamlet	1897	1904
Univ. of Vermont, 1894		
Ledbetter, Jas. McQ., Rockingham	1894	1903
Vanderbilt Univ., 1894		
McIntosh, W. R., Roberdell	1916	1917
N. C. Med. Coll., 1913		
McPhail, L. D., Rockingham	1900	1902
Univ. of Md., 1900		
Maness, J. M., Ellerbe,	1909	1910
Univ. of N. C., 1909		
Terry, W. C., Hamlet	1912	1914
N. C. Med. Coll., 1911; Univ. of Md., 1912		
Webb, W. P., Rockingham	1897	1904
Med. Coll. of S. C., 1897		

ROBESON COUNTY

President, Thomas C. Johnson, Lumberton	1903	1903
Med. Coll. of Va., Richmond, 1903		

Name and Address	*Licensed*	*Joined State Society*
Secretary, E. R. Hardin, Lumberton	1911	1920
Univ. of Ga., 1911		
Andrews, Nathan H., Rowland	1911	1912
N. C. Med. Coll., 1911		
Baker, Horace M., Lumberton	1917	1919
Harvard Med. School., 1917		
Beam, R. S., Lumberton	1912	1915
Jeff. Med. Coll., 1912		
Bowman, E. L., McDonalds	1914	1916
Med. Coll. of Va., 1914		
Brown, J. P., Fairmont	1887	1893
Univ. of Md., 1883		
Carmicheal, Thaddeus W., Rowland	1911	1919
Ky. Univ. of Med., 1904		
Costner, Thos. F., Lumberton	1885	1918
Jeff. Med. Coll., 1882		
Currie, D. S., Parkton	1906	1907
Med. Coll. of N. C.		
Evans, W. E., Rowland	1894	1904
Med. Coll. of Va., 1894		
Hays, A. H., Fairmont	1917	1919
Univ. of Ga., 1917		
Hodgin, H. H., Red Springs	1906	1907
Univ. of Md., 1905		
Knox, John, Jr., Lumberton	1907	1907
Univ. of Md., 1906		
McClelland, Joseph O., Maxton	1912	1913
Med. Coll. of Va., Richmond, 1908		
McMillan, Benj. F., Red Springs (Hon.)	1884	1884
Univ. of Md., 1882		
McMillan, Edwin G., Maxton	1919	1920
Univ. of Tulane, 1919		
McMillan, Roscoe D., Red Springs	1911	1912
Univ. of Md., 1910		
Martin, J. A., Lumberton	1915	1917
Med. Coll. of Va., Richmond, 1915		
Nash, J. Fred, St. Pauls	1914	1916
N. C. Med. Coll., 1914		
Norman, J. S., Boardman	1911	1920
P. and S., Balt., 1909		
Norment, Thos. A., Lumberton	1893	1904
N. C. Med. Coll., 1894		
Poole, Claud T., St. Pauls	1908	1913
N. C. Med. Coll., 1907		
Pope, Henry T., Lumberton	1893	1902
N. C. Med. Coll., 1894		
Price, H. L., Fairmont	1914	1920
N. C. Med. Coll., 1914		
Reedy, Howard, Rowland	1887	1914
Med. Coll. of S. C., 1884		
Ricks, Leonard E., Fairmont	1896	1913
Med. Coll. of Va., 1896		
Rozier, R. G., St. Pauls	1899	1904
Univ. of Md., 1899		
Smith, J. McN., Rowland	1908	1909
Jeff. Med. Coll., 1908		
Stamps, Thos., Lumber Bridge (Hon.)	1888	1890
Univ. of Louisville, 1888		
Thompson, Neill A., Lumberton	1895	1904
Md. Med. Coll., 1905		

Name and Address	*Licensed*	*Joined State Society*
Watson, Thos. M., Maxton Tulane Univ., 1919	1919	1920
West, George H., Fairmont Jeff. Med. Coll., 1892	1916	1919

ROCKINGHAM COUNTY

President, Charles R. Wharton, Ruffin Med. Coll. of Va., 1897	1897	1904
Secretary, James T. Taylor, Madison Univ. of Md.; Coll. of P. and S., Balt., 1908	1908	1910
Abernathy, Miles B., Reidsville N. C. Med. Coll., 1906	1906	1910
Boaz, Thos. A., Stoneville Coll. of P. and S., Balt., 1892	1892	1905
Cummings, M. P., Reidsville Jeff. Med. Coll., 1911	1911	1914
Dillard, G. P., Draper Chicago Coll. of Med. and Surg., 1916	1916	1919
Dixon, H. C., Madison Univ. and Bellevue Hosp., Med. Coll., N. Y., 1916	1916	1921
Ellington, S. B., Wentworth Washington Univ. School of Med., 1872	1885	1904
Fetzer, P. W., Mayodan Univ. of Va., Dept. of Med., 1916	1916	1920
Jett, Samuel G., Reidsville Univ. of the South, 1903	1908	1911
Johnson, W. A., R. F. D., Reidsville N. C. Med. Coll., 1907	1909	1910
McBryde, M. H., Reidsville Univ. Coll. of Med., Richmond, 1901	1901	1904
McGehee, John Wm., Reidsville Univ. of Md., 1904	1904	1905
Martin, Snydor L., Leaksville Balt. Med. Coll., 1892	1892	1904
Matthews, Wm. W., Spray Chicago Coll. of Med. and Surg., 1913	1915	1918
Ray, J. B., Leaksville Balt. Med. Coll., 1898	1898	1898
Stewart, J. T., R. F. D., Summerfield	1889	1898
Stokes, P. B., Ruffin Med. Coll. of Va., 1917	1917	1920
Taylor, T. G., Leaksville Ky. School of Med., 1877	1877	1910
Thacker, J. H., Reidsville Medico-Chirurgical Coll. of Phila., Pa., 1889	1889	1921
Tuttle, A. F., Spray N. C. Med. Coll., 1901	1901	1907
Webb, S. Edgar, Draper N. C. Med. Coll., 1908	1908	1916
Wilson, W. P., Madison N. C. Med. Coll., 1908	1908	1916

ROWAN COUNTY

President, Robert M. West, Salisbury Med. Coll. of Va., 1904	1900	1904
Secretary, Frederick B. Spencer, Salisbury Univ. of N. C., 1909	1909	1911

Name and Address	*Licensed*	*Joined State Society*
Armstrong, C. W., Salisbury	1914	1915
Univ. of Md., 1914		
Black, O. R., Landis		1920
N. C. Med. Coll.		
Boger, T. D., Rockwell	1906	1921
N. C. Med. Coll., 1906		
Boyden, Wm. C., China Grove	1914	1913
N. C. Med. Coll., 1913		
Brawley, Robert V., Salisbury	1903	1904
Univ. Coll. of Med., Va., 1903		
Brawley, M. H., Salisbury	1912	1914
N. C. Med. Coll., 1910		
Brown, Clarence E., Faith	1918	1921
N. C. Med. Coll., 1918		
Brown, G. A., Mt. Ulla	1897	1898
Univ. of Va., 1897		
Busby, Julian G., Spencer	1904	1905
Univ. of Md., 1904		
Choate, Glenn Wm., Salisbury	1909	1909
Univ. Med. Coll. of Va., 1909		
Council, J. B., Salisbury (Hon.)	1885	1885
P. and S., Balt., 1884		
Ellis, Frank A., Salisbury	1919	1919
Univ. of Pa., 1919		
Fleming, G. M., Cleveland	1919	1921
Emory Univ. School of Med., 1919		
Heilig, Herman G., Salisbury	1899	1904
Univ. of Md., 1899		
McKenzie, B. W., Salisbury	1916	1920
Jeff. Med. Coll., 1916		
McKenzie, Wm. W., Salisbury	1893	1894
Jeff. Med. Coll., 1893		
Monk, Henry L., Salisbury	1899	1903
Med. Coll. of Va., 1897		
Newman, Harold H., Salisbury	1914	1916
Johns Hopkins Univ., 1913		
Peeler, J. H., Salisbury	1899	1904
Va. Univ. Coll. of Med., 1899		
Ramseur, G. A., China Grove	1886	1887
Jeff. Med. Coll., 1880		
Shafer, Irving E., Salisbury	1914	1914
N. C. Med. Coll., 1914		
Sigman, Frederick G., Spencer	1909	1910
Univ. Med. Coll. of Va., 1909		
Slate, Wesley C., Spencer	1909	1913
Univ. of Tenn., 1903		
Stokes, J. E., Salisbury	1900	1901
Univ. of Md., 1892		
Summerell, E. M., China Grove (Hon.)	1883	1883
Univ. of Pa., 1883		
Trantham, H. T., Salisbury (Hon.)	1878	1879
Univ. of N. Y., 1875		
Van Poole, C. M., Salisbury (Hon.)	1880	1830
P. and S., Balt., 1880		
Whitehead, John, Salisbury (Hon.)	1880	1880
Univ. of Pa., 1880		
Woodson, Charles W., Salisbury	1905	1904
P. and S., N. Y., 1904		

RUTHERFORD COUNTY

Name and Address	*Licensed*	*Joined State Society*
President, John M. Allhands, Cliffside Chicago Coll. of Med. and Surg., 1910	1910	1911
Secretary,		
Biggs, M. H., Rutherfordton Univ. of Pa., 1897	1907	1908
Bostick, Wm. C., Forest City N. C. Med. Coll., 1905	1905	1905
Crawford, Robt. H., Rutherfordton Johns Hopkins, 1914	1920	1921
Gold, Charles F., Ellenboro Univ. of N. C., 1910	1910	1911
Harrell, L. B., Caroleen Grout Univ., 1897	1902	1904
Hicks, Romeo, Henrietta Southern Med. Coll., Atlanta, 1888		1899
Lovelace, T. C., Henrietta P. and S., Balt., 1883	1885	1904
Norris, Henry, Rutherfordton Univ. of Pa., 1896	1907	1908
Reid, George P., Forest City Univ. Coll. of Med., Va., 1895	1894	1899
Rucker, Adin Adam, Ureo Univ. of Md., 1908	1908	1909
Thompson, J. B., Bostick P. and S., Balt., 1898	1898	1904

SAMPSON COUNTY SOCIETY

President, Paul Crumpler, Clinton Univ. of Tenn., 1907	1907	1908
Secretary, O. L. Parker, Clinton Med. Coll. of Va., 1918	1918	1919
Beard, G. C., Kerr Univ. of Md., 1912	1912	1916
Brewer, J. Street Roseboro Jeff. Med. Coll., 1919	1919	1921
Hollingsworth, E. T., Clinton N. C. Med. Coll., 1912	1912	1915
Kerr, John D., Clinton Univ. of Md., 1908	1908	1910
Matthews, James O., R. F. D., Clinton Univ. Coll. of Med., Va., 1897	1879	1902
Parker, J. R., Clinton Univ. of Md., Med. School		1919
Sessoms, E. T., Autryville Coll. of P. and S., Balt., 1885	1885	1917
Sloan, Wm. H., Ingold P. and S., Balt., 1916	1916	1920
Sykes, Gibson L., Salemburg Univ. Coll. of Med., Va., 1900	1900	1902
Turlington, H. C., Cooper Univ. Coll. of Med., Va., 1913	1913	1914
Underwood, O. E., Roseboro Univ. Coll. of Med., Va., 1909	1909	1910
Wilson, Robert B., Newton Grove Ky. School of Med., 1889	1889	1904

SCOTLAND COUNTY

Name and Address	*Licensed*	*Joined State Society*
President, N. C .Hunter, Laurinburg	1899	1917
Medico-C. of Phila., 1899		
Secretary, F. P. James, Laurinburg	1908	1908
Jeff. Med. Coll., Phila., 1908		
Cannady, N. B., Laurinburg	1912	1916
Univ. of N. C., 1912		
Erwin, Evan A., Laurinburg	1913	1913
Med. Coll. of S. C., 1912		
Gibson, John S., Gibson	1905	1907
Univ. of Md., 1905		
John, Peter, Laurinburg	1897	1904
Univ. of Md., 1897		
Livingston, E. A., Gibson	1912	1913
Univ. of Md., 1912		
McLean, Allen, Wagram	1908	1911
Univ. of Md., 1908		
McLean, Peter, Laurinburg	1907	1908
Univ. of Md., 1906		
Pate, J. G., Gibson	1905	1917
Univ. of Pa., 1905		
Shaw, W. G., Wagram	1895	1904
P. and S., Balt., 1892		
Wilcox, J. W., Laurel Hill	1906	1906
Univ. of N. C., 1906		

STANLY COUNTY SOCIETY

President, Julius Clegg Hall, Albemarle	1899	1908
Univ. Coll. of Med., Va., 1890		
Secretary, Lucius Victor Dunlap, Albemarle	1909	1910
Univ. of N. C., 1909		
Allen, Jos. A., New London	1901	1904
Univ. Coll. of Med., Va., 1901		
Anderson, Jasper N., Albemarle	1895	1895
Univ. of Med., 1895		
Campbell, James I., Norwood	1898	1898
Under-graduate N. C. Med. Coll.		
Cox, Benj. F., Palmerville	1886	1908
Coll. of P. and S., Balt., 1886		
Hathcock, Thomas A., Norwood	1893	1904
Univ. of Md., 1893		
Hill, Wm. Isaac, Albemarle	1897	1904
Univ. of Md. and Coll. of. P. and S., Balt., 1897		
Laton, James F., Albemarle	1909	1910
N. C. Med. Coll., 1909		
Lentz, C. M., Albemarle	1909	1910
N. C. Med. Coll., 1909		
Moore, D. Bain, Badin	1913	1915
Univ. Coll. of Med., Va., 1913		
Shaver, W. T., Badin	1920	1921
Univ. of Md., 1918		

STOKES COUNTY SOCIETY

President,		
Secretary,		

Name and Address	*Licensed*	*Joined State Society*
Ellington, J. H., Sandy Ridge	1885	1904
P. and S., Balt., 1872		
Hanes, J. L., Pine Hall	1902	1920
P. and S., Balt., 1902		
Helsabeck, R. S., Mizpah		1920
Tuttle, Reuben G., Walnut Cove	1909	1913
N. C. Med. Coll., 1909		
Jones, A. G., Walnut Cove	1894	1904
Univ. of N. Y., 1868		
McCanless, Wm. V., Danbury	1893	1904
Univ. of N. Y., 1893		

SURRY COUNTY SOCIETY

President, M. A. Royall, Elkin	1885	1913
P. and S., Balt., 1885		
Secretary, Moir S. Martin, Mt. Airy	1909	1916
Univ. Coll. of Med., Va., 1905		
Ashby, E. C., Mt. Airy	1914	1916
Univ. of Penn., 1914		
Ashby, Thomas B., Mt. Airy	1885	1896
P. and S., Balt., 1885		
Baird, C. A., Mt. Airy	1904	1912
N. C. Med. Coll., 1904		
Bernard, Holman, Pinnacle	1914	1919
Med. Coll. of Va., 1912		
Flippin, R. E. L., Pilot Mountain	1897	1901
Balt. Med. Coll., 1892		
Flippin, Samuel T., Siloam	1898	1898
N. C. Med. Coll., 1898		
Garvey, R. R., State Road	1915	1919
N. C. Med. Coll., 1915		
Hollingsworth, Edward M., Mt. Airy	1898	1904
Univ. Coll. of Med., Va., 1898		
Hollingsworth, Robert E., Mt. Airy	1899	1904
Univ. Coll. of Med., Va., 1904		
Lancaster, R. M., Dobson	1916	1917
N. C. Med. Coll., 1914		
Moorefield, R. H., R. F. D., 1, Westfield	1906	1917
N. C. Med. Coll., Charlotte, 1906		
Reece, James M., Elkin	1886	1904
P. and S., Balt., 1896		
Ring, Joseph W., Elkin	1885	1904
P. and S., Balt., 1880		
Rowe, H. B., Mt. Airy	1910	1914
Univ. of Md., 1910		
Salmons, H. C., Jonesville	1904	1908
N. C. Med. Coll., Charlotte, 1904		
Smith, James B., Pilot Mountain	1885	1896
P. and S., Balt., 1884		
Smith, James T., Westfield	1899	1918
N. C. Med. Coll., 1898		
Stone, Wesley M., Dobson	1906	1907
N. C. Med. Coll., 1904		
Taylor, William S., Mt. Airy	1874	1894
Jeff. Med. Coll., 1874		
Wellborn, William R., Elkin	1908	1913
N. C. Med. Coll., 1905		

Name and Address	*Licensed*	*Joined State Society*
Williams, Lester L., Mt. Airy Md. Med. Coll., 1913	1913	1916
Woltz, John L., Mt. Airy Southern Med. Coll. of Ga., 1897	1902	1904

SWAIN COUNTY SOCIETY

President,		
Secretary,		
Holt, R. D., Cherokee Med. Coll. of Va., 1899	1911	1904

TRANSYLVANIA COUNTY

President,		
Secretary,		
English, Edwin S., Brevard Univ. of the South, 1901	1902	1904

UNION COUNTY

President, H. D. Stewart, Monroe Univ. of Md., 1898	1898	1904
Secretary, R. L. Payne, Monroe Tulane Univ., 1911	1911	1912
Armfield, Romulus, Marshville Med. Coll. of Va., 1881	1883	1904
Asheraft, J. E., Monroe Univ. of N. Y., 1887	1887	1890
Blair, M. P., Marshville Med. Coll. of Va., 1895	1895	1895
Garren, R. H., Monroe Univ. of Nashville, 1900	1901	1917
Jerome, J. R., Wingate Med. Coll. of Va., 1890	1890	1904
Love, W. M., Unionville N. C. Med. Coll., 1915	1915	1919
McCain, William R., Waxhaw Univ. of Md., 1897	1898	1898
Nance, George B., Monroe Jeff. Med. Coll., Phila., 1885	1885	1904
Neal, John W., Monroe N. Y. Univ. Med. Coll., 1884	1887	1904
Perkins, David R., Marshville Balt. Med. Coll., 1903	1906	1907
Pruitt, G. C., Monroe Atlanta Med. Coll., 1911	1911	1920
Smith, G. M., Monroe N. C. Med. Coll., 1914	1914	1919
Stevens, Samuel A., Monroe Univ. of Md.	1898	1898
Whitley, A. D. N., Unionville Univ. of Md., 1897	1897	1904
Williams, Edw. J., Monroe Univ. of N. Y., 1917	1920	1921

VANCE COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President, F. R. Harris, Henderson (Hon.)	1882	1883
Univ. of Va., 1881		
Secretary, J. H. Wheeler, Henderson	1918	1920
Jeff. Med. Coll., 1918		
Allen, Benj. G., Henderson	1904	1908
Bellevue Med. Coll., 1904		
Bass, H. H., Henderson	1899	1900
Univ. of Md., 1899		
Chapin, Wm. Burdette, Townsville	1909	1910
Univ. of N. C., 1909		
Crews, N. H., Henderson	1914	1916
Jeff. Med. Coll., 1914		
Fenner, Edwin F., Henderson	1906	1908
Univ. of Md., 1913		
Gill, Robt. J., Henderson	1880	1890
Univ. of Pa., 1880		
McIntosh, Leland C., Henderson	1914	1914
Atlanta Coll. of P. and S., 1913		
Newell, H. A., Henderson	1906	1907
P. and S., Balt., 1906		
Upchurch, Robert T., Henderson	1908	1910
Jeff. Med. Coll., 1908		

WAKE COUNTY SOCIETY

President, O. L. Ray, R. F. D. 1, Raleigh	1899	1904
Univ. Coll. of Med., Va., 1899		
Secretary, R. P. Noble, Raleigh	1907	1916
Univ. of N. C., 1907		
Abernathy, Claude O., Raleigh	1906	1907
Univ. of N. C., 1906		
Adams, R. K., Raleigh	1912	1916
Jeff. Med. Coll., 1912		
Anderson, Albert, Raleigh (Hon.)	1888	1890
Univ. of Va., 1888		
Battle, Kemp P., Raleigh (Hon.)	1882	1882
Univ. of Va., 1881; Bellevue Med. Coll., 1882		
Beath, Thos., Raleigh	1920	1921
Toronto Univ., 1891		
Bell, Carl W., Raleigh	1915	1916
Coll. of P. and S., Balt., 1914		
Bell, George M., Wakefield	1885	1893
P. and S., Balt., 1885		
Blalock, Nathan M., McCullers	1890	1904
P. and S., Balt., 1890		
Bonner, H. M., Raleigh	1897	1918
Med. Coll. of Va., 1897		
Broughton, N. B., Raleigh	1920	1921
Univ. of Pa., 1919		
Buchanan, L. T., Raleigh	1915	1917
Jeff. Med. Coll., 1913		
Buffalo, J. S., Garner	1900	1904
Balt. Med. Coll., 1900		
Burt, Benj. W., New Hill	1886	1904
P. and S., Balt., 1886		
Campbell, Alton C., Raleigh	1910	1912
Univ. of N. C., 1910		
Caveness, Zebulon M., Raleigh	1903	1903
Univ. of N. C., 1903		

Name and Address	*Licensed*	*Joined State Society*
Carroll, E. D., Dixon, Raleigh Woman's Med. Coll., 1895	1900	1900
Check, C. E., Fuquay Springs Univ. Coll. of Med., Va., 1912	1912	1914
Cooper, G. M., Raleigh Univ. Coll. of Med., Richmond, 1905	1905	1906
Cozart, W. S., Holly Springs Med. Coll. of Va., 1914	1914	1917
Ellington, A. J., Raleigh Columbia Univ., 1915	1915	1917
Finch, O. E., Apex Jeff. Med. Coll., 1915	1915	1917
Flowers, C. E., Zebulon Med. Coll. of Va., 1913	1915	1916
Fowler, M. L., Zebulon Coll. of P. and S., Balt., 1881	1885	1904
Freeman, R. H., Raleigh Jeff. Med. Coll., 1908	1908	1919
Gibson, M. R., Raleigh Univ. of N. C., 1905	1905	1914
Goodwin, A. W., Raleigh (Hon.) Bellevue Med. Coll., 1887	1887	1887
Griffin, T. A., Wendell Univ. of Md., 1912	1912	1913
Haywood, F. J., Raleigh (Hon.) Bellevue Med. Coll., 1868		1871
Haywood, Hubert B., Jr., Raleigh Univ. of Pa., 1909	1909	1910
Haywood, Hubert, Raleigh (Hon.) Bellevue Med. Coll., 1879	1879	1879
Horton, M. C., Raleigh Univ. Coll. of Med., Va., 1903	1911	1911
Horton, W. C., Raleigh P. and S., Balt., 1897	1896	1904
Hunter, J. P., Cary Jeff. Med. Coll., 1919	1919	1921
Jenkins, Charles L., Raleigh N. Y. Univ. Med. Col., 1890	1890	1894
Johnson, Robert Wade, Apex Univ. of Tenn., 1900	1901	1904
Jordan, Thos. M., Raleigh (Hon.) P. and S., Balt., 1881	1881	1882
Judd, Eugene C., Raleigh Univ. of Pa., 1911	1911	1912
Judd, James M., Cardenas Balt. Med. Coll., 1897	1899	1901
Knox, Augustus W., Raleigh (Hon.) Bellevue Med. Coll., 1874	1878	1880
Lawrence, B. J., Raleigh Jeff. Med. Coll., 1919	1919	1920
Lewis, Richard H., Raleigh (Hon.) Univ. of Md., 1871	1877	1900
Long, E. F., Raleigh Med. Coll. of Va., 1909	1909	1912
Lowery, John R., Raleigh Univ. of Md., 1904	1904	1913
McCullers, James J. L., McCullers P. and S., Balt., 1886	1886	1893
McGee, James Wm., Raleigh (Hon.) Bellevue Med. Coll., 1888	1888	1888

Name and Address	*Licensed*	*Joined State Society*
McKee, John S., Raleigh	1908	1909
Univ. of Md., 1907		
Neal, Kemp P., Raleigh	1920	1921
Harvard, 1917		
Neal, Paul N., Raleigh	1920	1921
Harvard, 1919		
Phillips, J. J., Raleigh	1905	1907
Columbia Univ.; P. and S., N. Y., 1894		
Proctor, I. M., Raleigh	1915	1917
Univ. of N. C., 1913; Univ. of Pa., 1915		
Rankin, Watson S., Raleigh	1901	1901
Univ. of Md., 1901		
Register, F. M., Raleigh		1918
Ky. School of Med., 1893		
Riggsbee, A. E., Morrisville	1909	1911
Univ. of N. C., 1909		
Rogers, Jas. Rufus, Raleigh	1886	1904
P. and S., Balt., 1886		
Root, Albert S., Raleigh	1911	1913
Univ. of Pa., 1911		
Royster, Hubert A., Raleigh	1894	1895
Univ. of Pa., 1894		
Royster, W. I., Raleigh (Hon.)	1869	1874
Bellevue, N. Y., 1869		
Shore, Clarence A., Raleigh	1909	1909
Johns Hopkins, 1907		
Small, Victor R., Raleigh	1920	1921
Ohio State Univ. Med. Coll., 1916		
Sorrell, L. P., R. 6, Raleigh	1885	1904
Med. Coll. of Va., 1875		
Stancill, Wm. W., Raleigh	1906	1914
Univ. Coll. of Med., Va., 1906		
Templeton, James M., Cary	1882	1893
Balt. Med. Coll., 1882		
Thompson, Hugh A., Raleigh	1914	1917
Univ. of Pa., 1914		
Turner, Henry Gray, Raleigh	1907	1910
Univ. of Pa., 1906		
Underhill, Henry P., Wendell	1901	1906
Univ. Coll. of Med., Richmond, 1901		
Watson, John B., Raleigh	1908	1909
Univ. of N. C., 1908		
West, Louis N., Raleigh	1912	1915
Jeff. Med. Coll., 1912		
Wilkerson, Charles B., Raleigh	1906	1908
Univ. of N. C., 1906		
Wilkerson, T. E., Raleigh	1914	1916
Univ. of Pa., 1914		
Wright, J. B., Raleigh	1899	1900
Univ. Coll. of Med., 1899		
Young, L. B., R. F. D. 3, Wake Forest	1886	1906
P. and S., Balt., 1886		

WARREN COUNTY

President, P. J. Macon, Warrenton	1883	1883
Univ. of Md., 1883		
Secretary, C. H. Peete, Warrenton	1906	1911
Univ. of Pa., 1903		
Holt, T. J., Warrenton	1904	1911
Med. Coll. of Va., 1904		

Name and Address	Licensed	Joined State Society
Horton, Howard M., Macon	1916	1920
Med. Coll. of Va., 1916		
Macon, G. H., Warrenton	1910	1911
Univ. Coll. of Med., Va., 1910		
Perry, Mark P., Macon (Hon.)	1884	1884
P. and S., Balt., 1884		
Rodgers, W. D., Jr., Warrenton	1913	1915
Jeff. Med. Coll., Phila., 1913		
Morton, N. D., Norlina	1909	1912
Univ. Coll. of Med., Va., 1909		

WASHINGTON-TYRELL COUNTIES

President, W. H. Hardison, Creswell	1871	1890
Washington Univ. of Md., 1870		
Secretary, W. H. Ward, Plymouth (Hon.)	1886	1886
Univ. of Md., 1881		
Bray, T. L., Plymouth	1916	1920
Univ. of Md., 1916		
Cohn, B. W., New Bern	1901	1909
Med. Coll. of Va., 1884		
Disosway, A. W., Columbia	1905	1909
Univ. of Md., 1905		
Halsey, Benj. F., Roper	1894	1894
Vanderbilt Univ., 1893		
Hassell, J. L., Creswell	1886	1904
Coll. of P. and S., Balt., 1886		
Mariner, N. B., Belhaven	1903	1903
Univ. Coll. of Med., Va., 1903		
Speight, J. W., Roper	1885	1904
Ky. School of Med., 1885		
Spruill, Joseph L., Sanatorium (Columbia)	1895	1907
Univ. of Md., 1895		

WAYNE COUNTY

President, Oscar Eason, Goldsboro	1910	1911
Univ. of N. C., 1910		
Secretary, Charles F. Strosnider, Goldsboro	1910	1913
Univ. of Md., 1909		
Bizzell, T. M., Goldsboro	1908	1916
Univ. of Md., 1908		
Cobb, Wm. H., Jr., Goldsboro	1889	1890
Jeff. Med. Coll., Phila., 1889		
Daniels, O. C., Goldsboro	1903	1916
Med. Coll. of Va., 1903		
Faison, Wm. W., Goldsboro (Hon.)	1883	1883
Jeff. Med. Coll., 1878		
Ginn, Theo. L., Goldsboro	1901	1904
Med. Coll. of Va., 1901		
Henderson, C. C., Mt. Olive	1914	1919
Univ. of Md., 1914		
Irwin, Henderson, Goldsboro	1914	1916
Univ. of Md., 1912		
Ivey, H. B., Goldsboro	1911	1917
Univ. Coll. of Med., Richmond, 1911		
Jones, Clara E., Goldsboro	1894	1897
Woman's Med. Coll. of Pa., 1894		
Lassiter, C. L., Fremont	1915	1918
Jeff. Med. Coll., 1915		

Name and Address	*Licensed*	*Joined State Society*
Miller, Robert B., Goldsboro Med. Coll. of Va., 1898	1900	1902
Moore, J. E., Mt. Olive		1918
Morris, Geo. B., Mt. Olive Univ. of Md., 1910	1910	1912
Person, Edgar Cooper, Pikeville Med. Coll. of Va., 1904	1904	1908
Person, H. M., Goldsboro N. C. Med. Coll., 1913	1913	1916
Ray, Hickman, Goldsboro Univ. of Md., 1915	1915	1921
Smith, R. A., Goldsboro Vanderbilt Univ., 1879	1882	1887
Smith, Wm. H., Goldsboro Univ. of Pa., 1906	1907	1912
Spicer, Richard W., Goldsboro N. C. Med. Coll., 1910; Univ. of Penn., 1911	1910	1916
Spicer, William, Goldsboro Bellevue Hosp. Med. Coll., N. Y., 1898	1898	1904
Steele, W. C., Mt. Olive Univ. of Md., 1894	1891	1894
Sutton, William G., Seven Springs Jeff. Med. Coll., 1889	1889	1896
Whelpley, Frank L., Goldsboro Washington Univ., St. Louis, 1902	1918	1918
Whetted, W. P., Eureka		1921

WILKES COUNTY SOCIETY

President, C. S. Sink, Wilkesboro N. C. Med. Coll., 1912	1912	1913
Secretary, Julian E. Duncan, N. Wilkesboro Univ. Coll. of Med., Richmond, 1907	1907	1908
Gambill, Ira S., Wilkesboro N. C. Med. Coll., Charlotte, 1912	1912	1917
Gilbreath, Frank H., N. Wilkesboro Univ. of Nashville, 1898	1898	1898
Horton, W. P., N. Wilkesboro Balt. Med. Coll., 1892	1896	1904
Hutchins, E. M., N. Wilkesboro N. C. Med. Coll., Charlotte, 1896	1896	1904
Pegram, R. W. S., Canton Balt. Med. Coll., 1892	1894	1907
Somers, L. P., New Castle Univ. of Md., 1897	1889	1904
Triplett, W. R., Purlear N. C. Med. Coll., 1914	1915	1920
Turner, J. M., N. Wilkesboro Univ. of Louisville, 1881	1885	1896
White, John W., Wilkesboro (Hon.) Jeff. Med. Coll., 1889	1889	1890

WILSON COUNTY SOCIETY

President, G. M. Brooks, Elm City Jeff. Med. Coll., 1918	1919	1919
Secretary, Ernest L. Strickland, Wilson Med. Coll. of Va., 1916	1916	1917

Name and Address	*Licensed*	*Joined State Society*
Anderson, Wade H., Wilson	1904	1904
Univ. of Va., 1902		
Anderson, Wm. S., Wilson	1880	1900
Washington Univ., Balt., 1868		
Barnes, Benjamine F., Elm City	1902	1902
Univ. of Md., 1902		
Best, Henry B., Wilson	1907	1908
Univ. of N. C., 1907		
Buie, Roderick Mark, Black Creek	1914	1916
Jeff. Med. Coll., 1914		
Dickinson, Elijah T., Wilson	1895	1900
Med. Coll. of Va., 1895		
Eagles, Charles S., Stantonsburg	1909	1910
Univ. of N. C., 1909		
Foster, J. F., Bailey	1916	1919
N. C. Med. Coll., 1916		
Grady, Leland V., R. 2, Wilson	1913	1914
N. C. Med. Coll., 1914		
Hackney, Ben. H., Lucama	1911	1913
Tulane Univ., 1911		
Herring, Benj. S., Wilson	1901	1901
Univ. of Mich., 1900		
Johnston, R. H., Wilson		1919
Univ. of Md., 1894		
Lamm, Isaac W., Lucama	1899	1900
Univ. Coll. of Med., 1899		
Lane, P. P., Wilson	1908	1920
Univ. of Md., 1908		
Lewis, Geo. W., Wilson	1885	1894
Univ. of Md., 1886		
McClees, Ed. C., Elm City		1920
Med. Coll. of Va., 1917		
Mitchell, George W., Wilson	1913	1920
Univ. Coll. of Med., Richmond, 1913		
Moore, Chas. E., Wilson (Hon.)	1875	1875
Bellevue Med. Coll., 1875		
Moore, Edwin G., Elm City (Hon.)	1883	1890
Univ. of Md., 1883		
Moore, K. C., Wilson	1909	1910
Univ. of Mich., 1909		
Person, T. E., Stantonsburg	1911	1914
N. C. Med. Coll., 1911		
Powell, H. H., Stantonsburg	1911	1914
N. C. Med. Coll., 1911		
Putney, R. H., Elm City	1914	1920
Med. Coll. of Va., 1914		
Saliba, Micheal M., Wilson	1910	1910
Balt. Med. Coll., 1897		
Smith, G. A., Black Creek	1893	1882
Louisville Med. Coll., 1887		
Smith, L. J., Wilson	1918	1918
Jeff. Med. Coll., 1912		
Williams, Alfred F., Wilson	1901	1904
Univ. of Md., 1901		
Woodard, C. A., Wilson	1904	1920
Univ. of Va., 1904		
Wooten, W. I., Wilson	1920	1921
Jeff. Med. Coll., 1920		

YADKIN COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President,		
Secretary,		
Bryant, Charles G., Jonesville Louisville Med. Coll., 1894	1902	1904
Clingman, J. J., R. F. D., Cana P. and S., Balt., 1877	1882	1904
Couch, V. F., Yadkinville Columbia Univ., 1910	1910	1919
Harding, Samuel A., Yadkinville N. C. Med., Coll., 1910	1910	1913
Russell, S. L., R. F. D. 1, Yadkinville Univ. of Tenn., 1892	1889	1904

YANCEY COUNTY SOCIETY

President,		
Secretary,		
Peck, W. A., Ramseytown		1919

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TRANSACTIONS

OF THE

NORTH CAROLINA HEALTH OFFICERS' ASSOCIATION

ELEVENTH ANNUAL SESSION

PINEHURST, NORTH CAROLINA

MONDAY, APRIL 25, 9:30 A. M:

NORTH CAROLINA HEALTH OFFICERS' ASSOCIATION

ELEVENTH ANNUAL SESSION

PINEHURST, MONDAY, APRIL 25, 1921

OFFICERS

DR. R. L. CARLTON, President, Winston-Salem
DR. L. J. SMITH, Vice-President, Wilson
DR. G. M. COOPER, Secretary-Treasurer, Raleigh

PROGRAM

9:00 A. M.

1. Call to Order by the President.
2. Prayer—Dr. J. A. Morris, Oxford.
3. President's Annual Address—Teaching Health, R. L. Carlton, M. D., Winston-Salem.
4. Report of Secretary-Treasurer—G. M. Cooper, M. D., Raleigh.
5. Appointment of
   (a) Committee on President's Address.
   (b) Committee on Visitors and New Members.
   (c) Auditing Committee.
   (d) Committee on Resolutions.
   (e) Other Committees.
6. A Simplified Venereal Disease Program—Millard Knowlton, M. D., U. S. P. H. Service.
7. Symposium on Maternity and Infant Welfare:
   (a) Infant Mortality—A Definite Responsibility of Public Health Authorities—Wortham Wyatt, M. D., Winston-Salem.
   (b) North Carolina Birth and Death Statistics with Particular Reference to Infant Welfare—F. M. Register, M. D, Raleigh.
   (c) The Nurse's Relation to Infant Welfare—Miss Rose M. Ehrenfeld, R. N., Raleigh.
   (d) The Midwife a Factor in Maternal and Infant Welfare—Miss Katherine Myers, R. N., Raleigh.
   (e) Discussion—Opened by J. B. Sidbury, M. D., Wilmington.

3:00 P. M.

1. Effective Quarantine Work:
   (a) Getting Cases Reported Early—P. J. Chester, M. D., Greenville.
   (b) The School as One Means—R. S. Bailey, M. D., Henderson.
   (c) Time of Quarantine—E. F. Long, M. D., Raleigh.
   (d) Control of Preventable Disease by Immunization—John H. Janney, M. D., Washington.
   (e) Discussion.

2. Tuberculosis Diagnostic Clinics—J. L. Spruill, M. D., State Sanatorium.
3. General Public Health Nursing:
   (a) The School Nurse—Duties and Methods—Miss Percye Powers, R. N., Winston-Salem.
   (b) Reaching the County School Population—Mrs. Alice T. Bassett, R. N., Newton.
   (c) Getting County Authorities Interested—Mrs. Mildred Hargrave, R. N., Asheboro.
   (d) Reaching the Adult Country People—Miss Lula B. Saucer, R. N., Weldon.
   (e) The Modern Health Crusade—Mrs. Dorothy Hayden, R. N., Greensboro.
   (f) Discussion.

8:00 P. M.

1. Backward and Downward Trend of the Human Family in America—J. E. Malone, M. D., Louisburg.
2. Informal Round Table Conference Conducted by the President—Subjects: Whatsoever Things Concern a Health Officer.
3. Reports of Committees.
4. Adoption of Resolutions.
5. Election of Officers.
6. Adjournment.

TRANSACTIONS

OF THE

NORTH CAROLINA HEALTH OFFICERS' ASSOCIATION

ELEVENTH ANNUAL SESSION

MONDAY, APRIL 25, 9:30 A. M.

The meeting was called to order by Dr. R. L. Carlton, of Winston-Salem, President.

INVOCATION

DR. J. A. MORRIS, OXFORD

Our Father, God, we pray for Thy presence here in this meeting. We come together as Thy servants, fighting on Thy side that which destroys Thy creation, and we pray Thee to be the inspiration of this meeting and the inspiration of everyone who engages in this fight, that he may go true and brave and valiant and accomplish Thy will. Help us in the deliberations here, that we do the things necessary for our encouragement in our several works. Oh Lord, we pray for the people also, those unto whom we are sent. We pray Thy presence with every man who works against disease. Give him a vision and clearness of vision that will enable him to know the things which are necessary and accomplish them through Thy help. We pray Thy direction here as in all things we do for Thee; for we are weak without Thee, as nothing, and dependent upon Thee, and inasmuch as we are trying to do Thy work we claim Thy help and ask Thee ever to be with us. Through Jesus Christ, our Lord. AMEN.

DR. CARLTON, PRESIDENT:

Before reading what I have to say, I wish to express my appreciation in a very great degree of being where I am today. It is an honor, and it is appreciated more than I am able to express.

PRESIDENT'S ADDRESS

TEACHING HEALTH

Dr. Victor C. Vaughn in his presidential address before the American Medical Association in 1914 said: "We boast of a great civilization, but this is justified only within limits. Science more nearly dominates the world than at any time in the past. Learning permeates the masses more deeply, but credulity and ignorance are widely prevalent. In this country of nearly one hundred millions, there are thousands whose greed impedes the progress of the whole, tens of thousands whose ignorance retards their growth, and other thousands who live by crime and procreate their kind to feed on generations to come. We have our schools, colleges and universities, while our almshouses, insane asylums and penal institutions are full. In our cities we see the palatial homes of the very rich, the splendid temples of trade and commerce, the slums of want and poverty, and the homes, both rich and squalid, of vice and crime. No nation in this condition can be given a clean bill of health. Our hilltops are illuminated by the light of knowledge, but our valleys are covered by the clouds of ignorance. We have not emerged from the shadows of the dark ages. The historian of the future will have no difficulty in convincing his readers that those who lived at the beginning of the twentieth century were but slightly removed from barbarism, as he will tell that the school, saloon and house of prostitution flourished in close proximity; that the capitalist worked his employees under conditions which precluded soundness of body; that the labor union man dynamited buildings; that while we sent missionaries to convert the Moslem and Buddhist, ten thousand murders were committed annually in the midst of us, and that a large percentage of our mortality was due to preventable disease."

These conditions, so well described by this great man, as existing nearly ten years ago, prevail in almost the same degree today. Evidently there is much to be done before we pass out of the shadows of ignorance into the full light of knowledge. The medical profession has important duties to perform in the work of making the human race better, tho' no one would imply that the entire burden of the uplift of mankind devolves wholly upon the medical man. But, again quoting Dr. Vaughn, "In past ages, medical men have been the chief torch bearers of science, the only light in which men can safely walk, and we must keep and transmit to our ancestors this trust and honor."

Of the medical man and his relation to the eradication of preventable diseases it will be my province to more especially speak of that group and their co-workers who are engaged, as a majority of those here are engaged, in various public health activities.

It has been discovered that health, like happiness, is to a large extent a matter of habit, and that it can be taught. And, this business of teaching health does not necessarily mean a code of laws or a lesson of hard, uninviting facts to be committed to memory, but, on the other hand, it means instruction so well delivered that health habits will be formed as a result of such instruction, sickness conditions will have been prevented, and well persons will have been kept well.

To keep folks well is the objective of every health department, be it State, municipal or county. And, the mission of every one of us and of every helper in our particular department is to so carry the public health message to the public and to so explain the workings of every division of our efforts that people will fully understand and appreciate. I do not mean to imply that a health officer or his staff of co-workers should be engaged in a continual round of explanations and descriptions of their activities. But every activity should be done in such a way that it is a source of instruction and that it may in some way help the person or persons we are serving to prevent sickness and to form habits which will keep them well.

CONSIDER VITAL STATISTICS

It has taken a long time to convince people generally that statistics of these two most important events in ones life—the birth and death—are really of importance to any one, but this has finally been driven home and it is pretty well understood that birth registration is of much significance to the individual himself and that mortality records are likewise of value not only to the family and the health department, but to the community. In this matter of dry statistics, it is found that the public will more readily respond than has been thought. For instance, a little more than the ordinary amount of human interest is taken in parents and the new baby in my town. When the birth certificate comes in to the registrar, he immediately mails to the mother a large envelope containing an attractive baby booklet, a certificate of birth registration bearing a bit of ribbon and the city seal and a letter of congratulations from the health officer. This letter makes clear to the mother that if it is necessary, the entire department of health is at her command to help her keep baby well. If, as so frequently occurs, baby's birth certificate bears no given name,

the baby's physician having filed the certificate before the given name had arrived, there is written into the certificate "Unnamed" or "No Name" so and so and a blank form for this name is attached with a simple explanation that the records are incomplete without the given name, that it would never do for the birth certificate to merely state "Unnamed" baby so and so, and almost invariably this information is brought to the registrar by one of the parents, within a very few days. This method of approach is a means of getting literature into the hands of the parents which is never resented, and should be used more extensively as an entering wedge toward public health instruction.

BABIES AND CHILDREN OF PRE-SCHOOL AGE

Are we doing all that can be done toward making our communities and the State as a whole safe for babies? Good work is undoubtedly being done all over North Carolina along the line of child welfare, but we will not have done all that we should until mothers shall have been so instructed that they will not lose thousands of little ones every summer because of diarrheal conditions, and that they will so understand feeding and the benefits to be derived from rest, fresh air and proper clothing that hundreds will be saved every year because of this knowledge, that they will under no circumstances expose or allow their little children to be exposed to any of the acute contagions—and just here let me add that some of the doctors themselves have not yet learned the value of keeping children away from the acute contagions. Not many weeks ago one of the older physicians of my town, before a meeting of the medical society, took to task very severely the local department of health because of its activity in urging mothers to keep their young children away from measles which was at that time epidemic in the community. The health department had repeatedly warned of dangers of complications, after effects, etc., and this physician questioned whether such statements were not actual misrepresentations of the facts. Indeed, our program is not a small one nor an easy one when such obstacles as this are to be overcome.

SMALLPOX

Are we doing all that can be done toward the eradication of smallpox? One would not think so in view of the number of cases occurring in this State every year. Are we delivering the message of vaccination as it should be delivered? There is absolutely no excuse for any school child in North Carolina to ever come down with a case

of smallpox and this is doubly true in those towns and counties which have a health organization. Our laws are amply sufficient to enable local health departments to enforce vaccination of school children and where this is not done some one who is positively responsible is guilty of failing to teach this phase of health to his board and the community.

DIPHTHERIA

All public health workers insist that every case of sore throat in a child should arouse the suspicion of parent, teacher, nurse or other person with whom the child comes in contact. Where there is school medical inspection, teachers and nurses are instructed to take cultures of a suspicious throat and send the child home to be isolated. Parents are told of the dangers of diphtheria, are instructed not to attempt home treatment, but to send for the family physician, are warned that delays are very dangerous and are told of the wonderful advantages to be gained by the early administration of antitoxin—thus far we have gone with our instruction regarding diphtheria in most communities in North Carolina. Have we gone far enough? Have we taught all there is to teach of this dread disease which in spite of antitoxin takes a toll of our children every year? Have we given the public in this respect all to which it is entitled? Have we prevented all the cases of diphtheria which could have been prevented?

All is not being done that can be done for the control and stamping out of this disease. We agree with Dr. C. E. A. Winslow who says: "A quarter of a century after the discovery of diphtheria antitoxin, the fruits of that discovery are not fully garnered. We possess a more complete knowledge of diphtheria and a more complete power over it than in the case of any other communicable disease. We can detect the incipient case and the carrier. We can measure natural immunity by the Schick test. We can produce passive immunity by the use of antitoxin and active immunity by the use of toxin-antitoxin mixture. Every weapon which could be needed to fight this enemy is in our hands, yet diphtheria continues to occupy third place among the communicable diseases and kills eleven or twelve thousand persons in the registration area each year.

Children, and adults too, are entitled to the benefits to be derived from the application of the Schick test and treatment with toxin-antitoxin and it is hoped that every member of this association will so impress this fact upon the people of his community that programs for the inoculation of all non-immunes will be urged all over the State. I am very glad that this particular phase of communicable

disease control is to be discussed in some of the papers on our program today.

TUBERCULOSIS

The amount of good work being done in North Carolina for the care of our tuberculous and for the protection of others from infection is very gratifying indeed. We have a State Sanatorium which for character and excellence of work is not excelled by any in the United States. The sad feature is that the capacity can not be increased threefold for white patients and a sanatorium for colored patients be established. Just here, let me say, our duty as teachers of health comes in again—we should so teach and preach anti-tuberculosis propaganda in our various districts that public sentiment will be so moulded in favor of increased sanatorium facilities that our legislative bodies will gladly make them possible.

The various county and city clinics for diagnosis of tuberculosis are doing good work, as are the clinics conducted by workers of the State Bureau of Tuberculosis. We are teaching our people along right lines when we encourage them to go to such clinics for examination and advice. We are giving them proper instruction when we send our public health nurses into their homes to tell them how to care for themselves and how to protect others and instruct as to the correct use of rest, fresh air, sunshine and diet. Much has been done for our people by means of literature, clinics, nurses, sanatoria, etc., and much is yet to be done. After all, we have hardly made a beginning in anti-tuberculosis work. There are many things we need to teach concerning tuberculosis and the various methods of prevention which have scarcely been mentioned. How many of us have so taught our school boards and parent-teacher associations regarding the advantages of *Open Air School Rooms* that such have been established? So far as I know there are no open air school rooms in North Carolina schools, which fact is a sad commentary on our work as teachers of health along this particular line. There are children in our schools who have tuberculosis now, others who are from families some one or more members of which have the disease, others who are anemic and ill nourished and who will fall an easy prey to tuberculosis if exposed to it. More should be done for these children than is now being done. Leading health workers from all sections of this and other countries think the chief means of solving the problem the problem of the care of children of this type lies in the establishment of *Open Air School Rooms.* An open air school room is one where the children are cured and taught at the same time. The rooms are

so arranged as to be practically out of doors—of course being protected from storms. The children are clothed in accordance with the weather, extra lunches are served, rest periods are observed, the work modified to suit their needs. Children who should be in such rooms are not necessarily tuberculous, but may have been exposed to it, they may be suffering from malnutrition and are too weak to keep up with their classes, they may be children who are frequently absent from school because of colds, bronchitis, etc. When such children are placed in open air rooms they gain rapidly in their school work, and they gain amazingly in their physical development. The child's power of resistance is greatly increased, they seldom suffer form colds and they contract the infectious diseases with less frequency than their mates who are not in open air classes. Such classes are life savers and have prevented many cases of tuberculosis where they have been thoroughly tried. In cities where schools of this kind have been opened they have never been closed. There are numbers of children in both white and colored schools all over North Carolina who should be in just such classes as those mentioned and it is a very worthy part of our teaching program to so make our people understand this need that open air school rooms will be provided. And this can be done for the country and small town schools just as easily as for the larger city schools. The problems are very similar. In this day of good roads and consolidation of rural schools the staff of teachers and school workers has so increased that there is practically no difference now in the methods used in the city schools from the neighboring ones in the rural community—and it has been shown many times that our country children need such special advantages of health just as badly as do those in the city.

Open air school rooms only are mentioned—but this one feature of fresh air education is by no means the entire program of fresh air teaching. Schools and children are mentioned especially because with children particularly lies our chief hope of putting across any worth while health program. Any community plan for fresh air education is incomplete which stops short with the schools and homes and ignores the fact that in the factories, the department stores, the offices, the shops, where boys and girls of today will be working tomorrow, conditions must also be made right. We pay heavy toll each year in preventable deaths from foul air diseases for our disregard of the simple requirements of nature.

Another thing closely related to this feature of fresh air education has been brought to our attention very vividly recently as we have gone about the systematic examination and weighing and measuring

of the school children of my community, and that is the lack of *Nutrition Classes in the Schools.* We have been amazed to find so large a percentage of the children so much undernourished that, on account of this malnutrition they find it extremely difficult and at times almost impossible to keep up with the work of their classes. Children of this type are found in every school and in practically every room of every school of my town and I feel reasonably sure the same conditions exist in the schools of other towns and rural communities as well. These little folks are pale, anemic, inattentive, listless in their studies and are easily fatigued both mentally and physically. The malnourished child is peculiarly susceptible to disease and is always catching whatever contagion happens to be making the rounds. Dr. W. R. P. Emerson, of Boston, a leader in the establishment of nutrition clinics and classes says the reasons for malnutrition are: 1. Physical defects (especially those which obstruct the breathing passages). 2. Lack of home control (the disorganized, badly-directed family, rich or poor). 3. Over fatigue. 4. Lack of food and faulty food habits and 5. Faulty health habits. These conditions apply to rich as well as poor and indicate that the problem may be one of ignorance rather than poverty. Are we having the children of all our schools regularly weighed and measured and having this done in such a way as to enlist the child's interest in the health game? Are we and our helpers explaining this condition of undernourishment so as to enlist the active co-operation of child, teacher, parent and school physician? Are we doing anything toward furthering the establishment of *Nutrition Classes* in these schools? If we are not doing this we are failing in our mission as teachers at a very vital point. One of the best solutions of the problem of malnutrition is a nutrition class or classes in every school in which intensive work among these children may be done. Such class would consist of a group of these undernourished children who meet regularly under the direction of physician, nurse, dietitian or other specially trained worker. The children's physical condition would be closely watched and any defect, of course, be corrected. Weight records should be kept and causes of gain or loss carefully explained to the entire class and the mothers if they could be induced to attend. Additional nourishment, especially plenty of milk and hot lunches should be provided for these children. The proper place for such class is in the school where it becomes a part of the educational system, and where the four agencies acting for the protection of the child may be most easily co-ordinated, that is, the home, the school, the medical and nursing service and the child's own interest.

In our opinion, no community in North Carolina could take a more important step than the establishment of nutrition classes for both white and colored schools. "The most vital thing in education, and the one which we have neglected longest, is to teach the weak how they may become strong and the strong how they may keep so. Every child has a right to grow up with a healthy body unless he has some physical handicap which could not be prevented and could not be removed," according to Dr. L. E. Holt of New York, who further says that "We should not rest until everything which is preventable has been prevented and every defect which is remediable has been remedied."

SCHOOL MEDICAL INSPECTION

The boys and girls of North Carolina are her greatest asset. In order to be of the greatest possible value to the State and Nation, care must be given their bodies as well as their minds and souls. Without physical well being the mind cannot function to its best advantage. Not a great many years have passed since the time when very little attention was paid to the physical condition and health of the school child. There was a strong tendency to regard "book learning" alone as practically the ideal thing. The activities of health officers and medical inspectors of schools were regarded as fads and the idea persisted for a long time that the mental training of a child is all that is necessary and that nature will look after the physical development. Now, the defects of such a system are realized and "health first in the schools" is the slogan frequently heard. Never again must the schools place "book learning" before physical fitness. Supervising the health of the school child is one of the great means of teaching health to that child, and teaching it in such a way that generations to come will be benefitted by such instruction. Preventing the spread of contagious diseases, indicating to parents the need for treatment, removing physical defects, rendering children more responsive to the educative process, etc., are some of the aims of supervising the school child's health and doing these things in such a way that the child gets driven home a lesson which his parents in all likelihood never had is probably the greatest objective in this work. For instance, if little Johnny is found with a suspicious throat and is sent home and quarantined because he is a "diphtheria carrier" and the whole process is carefully explained to him by the school nurse, a few years later when he has a little Johnny of his own in school he will better understand how to care for his boy and protect him and others and there will not be the so frequently found misunderstanding between parent and school

medical inspector. The same holds good for the other communicable diseases and for the correction of defects such as decayed teeth and diseased tonsils and adenoids—and the same would be found true of open air school rooms and nutrition classes if we had them. A part of our best teaching is done in the dental clinic of the school where the child's teeth are repaired or cleaned and he is told how to care for them and of the benefits to be derived from such care and in the tonsils and adenoid clinic where diseased conditions so often handicapping him are removed. These special clinics for the schools cannot be too strongly endorsed.

Other means of teaching health in the schools are by the inauguration of the Modern Health Crusade, by establishing Little Mothers Leagues among the girls or by using the Child Health Organization, or by forming a Posture League among them. One or more of these or similar organizations should be established in every school, large or small and by so doing actually teach the child health habits which may last throughout life.

At this juncture I would like to mention the actual *text book teaching* of health in the schools. We have progressed a little beyond the old physiology of a few years ago in which we were taught to recite the bones of the body and were warned of the dangers of alcohol and tobacco. The hygiene taught in the public schools of North Carolina today is a decided improvement over that period but in our humble opinion there is still much room for advancing the text book methods of teaching health to our children and if this association should go on record as being an advocate of the adoption by the book commission of a text book for our schools which would really teach the proper care of the body and health habits and teach it attractively, we as a body of health officers would add decided impetus to the teaching method.

OTHER MEANS OF TEACHING HEALTH

As was said a few minutes ago every activity of a health department has for its prime object teaching health. When your sanitary inspectors go out on their rounds and by persuasion or enforcement of the law secure the abatement of nuisances, your greatest point gained is not that the nuisance has been abated but that one more individual or family has been led to see that health conditions have been improved by such abatement. You are teaching health by your campaigns for pure water and milk supplies; by your campaign for immunization against typhoid fever; by your insistance that all homes in North Carolina shall have sanitary privies or sewer connections;

by your activity in seeing that pure foods, properly handled are provided for your communities; by the physical examination of food handlers, etc.

Health is being taught in a most practical way in some of our larger communities by means of baby clinics and health stations; by venereal disease clinics and by campaigns of education concerning this class of disease.

It is being taught, as no one else can teach it, by that class of our co-workers—*Public Health Nurses.* The nurse is the central figure in the modern public health campaign. Her chief work is to help people to be well, to get well, to stay well. Any form of community work in which the health of the public is concerned is hers. Wherever she is found, in the home, the school, on the public playground, with mothers and their babies, in industries and factories she delivers a public health message with more force and effectiveness than any other worker can possibly do. She assists the school medical inspector in his work, she is a very valuable part of the various clinics, she teaches mothers how to care for their babies, she instructs boys and girls in the Modern Health Crusade, she instructs girls in Little Mothers Leagues, she helps more than any other agency to establish a bond of firm friendliness between the family she visits and the health department. More public health nurses to deliver this message and to teach the things pertaining to health are needed by every department of health, be it large or small, in North Carolina.

My message is ended. If, by what I have said today some one may have been stimulated in the smallest degree to put forth a little greater effort to deliver the public health message in such a way that a few babies lives may be saved in North Carolina, a few more cases of smallpox prevented, a few more lives saved from diphtheria or tuberculosis or other of the preventable diseases, my effort shall have been well worth while. May I close again quoting Dr. Vaughn: "The wisdom of our fathers has secured for us a greater measure of health and a longer term of life, let us do as well for those who are to possess this fair land in the next generation. Let us live not only for ourselves and the present, but for the greater and more intelligent life of the future."

Not myself, but the truth that in life I have spoken,
Not myself, but the seed that in life I have sown,
Shall pass into ages—all about me forgotten,
Save the truth I have spoken, the things I have done.

Dr. G. M. Cooper, Secretary: In arranging this program, the Committee, realized that the chief recognition coming to any city,

county or State health department must eventually resolve itself into a reduction of the death rate from preventable diseases, and realizing also that we have in the infant death rate from preventable diseases the chief obstacle to such reduction, we went out of our Association in an effort to couple up the pediatricians and the people in the State engaged in infant welfare and maternity work, extra-medical, as well as medical, and that accounts for our arranging the program as you see it, and for our getting Dr. Wortham Wyatt, of Winston-Salem, and Dr. J. B. Sidbury, of Wilmington, to take part in this program.

REPORT OF SECRETARY-TREASURER FOR YEAR ENDING APRIL 1, 1921

G. M. Cooper, M. D., Raleigh

At the close of the meeting in Charlotte one year ago there was no funds left over. There have been no collections since, consequently your Treasurer during the past year, having no money, has expended none, has nothing on hand now.

The active membership of this Association constitutes about 10% of the total membership of the North Carolina Medical Society; but the space used in publishing our Transactions constitutes about 15% of the volume. This has been done heretofore without special charges against our Association. For this special courtesy we should thank the Publication and Finance Committees and the Secretary of the State Society. I wish also to express full appreciation to the State Society for providing our Association with a stenographer to report our meetings at Charlotte last year.

I thought seriously for a long time of making recommendations at this meeting, the anniversary of ten full years of service, which would call for an extensive and far-reaching expansion of the activities of the Association; but for several reasons I have decided that for the present at least, it would probably be best to content ourselves with making no other changes than that involved in the special consideration of the report of the committee appointed last year with reference to changing the name of the Association in order to confer full membership privileges on registered nurses and others interested in public health progress.

APPOINTMENT OF COMMITTEES

The President announced the appointment of the following committees:

Auditing Committee: Dr. W. M. Jones, Greensboro; Dr. Millard Knowlton, Raleigh; Dr. Arch Cheatham, Durham.

Committee on Resolutions: Dr. E. F. Long, Raleigh; Dr. A. C. Bulla, Winston-Salem; Dr. J. A. Morris, Oxford.

Committee on Visitors and New Members: Dr. L. L. Williams, Mount Airy; Dr. W. A. McPhaul, Charlotte; Dr. E. T. Hollingsworth, Clinton.

Dr. Cooper: To save Dr. Carlton, our President, the embarrassment of appointing a committee to consider and act upon the President's address, I shall take the liberty, with the permission of Dr. Carlton, of suggesting that such a committee be appointed, and I also take the liberty of asking that Col. J. L. Ludlow, Mr. R. B. Wilson, and Dr. E. F. Long, serve as members of this committee.

A SIMPLIFIED VENEREAL DISEASE PROGRAM

Millard Knowlton, M. D., C. P. H.

Regional Consultant, United States Public Health Service;
Director, Bureau of Venereal Diseases, North
Carolina State Board of Health

In respect to method of initiation the venereal disease campaign differs from all other public health movements ever inaugurated in this country. For most States and lesser communities this work was introduced from without instead of being developed from within; the activities to be undertaken, the form of organization with which to work, and even the laws and regulations for the control of venereal diseases were all of outside origin.

This unusual method of development was made possible by the fact that the federal government took the initiative and made a large appropriation for venereal disease control, part of which was alloted to States on condition that they duplicate the fund by State and local appropriations. This action provided for the simultaneous inauguration of activities in all parts of the country. Under such circumstances, with no corps of trained workers to take up the work, it was necessary for a program to be handed down to the States and lesser communities.

This method of establishing a governmental activity in a democracy such as ours has both its advantages and disadvantages. Among its advantages may be listed the following:

1. A rapid development of activities is made possible.

2. A standardization of efforts along approved lines is facilitated.

3. Less time is required for experimentation by local agencies.

4. A national clearing house of experience is placed at the service of all communities.

5. Material for educational purposes can be prepared in one central office instead of many offices.

6. The prestige of the Federal Government can be used to back up the campaign wherever needed.

Among the disadvantages of such a plan of procedure the following may be mentioned:

1. Difficulty may be experienced in adapting the program to all local communities.

2. Mistakes in the program are apt to be repeated in many communities before correction is made.

3. In the rush to get things done the duties and responsibilities of other governmental agencies may be thrust upon the health department. It is especially with respect to this point that a simplified program is considered. Our vision in regard to the matter has been greatly cleared by experience. Simplification is accomplished by a distribution of duties and responsibilities among the various governmental agencies concerned with activities relating to the problem.

Approved activities in the program of venereal disease control as projected and developed may be grouped under the four heads of medical measures, educational measures, repressive measures and recreation. I suppose that no one has ever seriously thought it to be the duty of a health department to develop recreational facilities, but health authorities have been expected to assume responsibility for the other three lines of activity which may be considered somewhat in detail.

1. *Medical measures.* Two distinct lines of activity belong to the group of medical measures. In the first place there must be provision of facilities for treatment by qualified physicians. In the second place there must be some administrative procedures by the health officer to discover cases and place them under treatment. Such procedures would include gathering information through required reports, the investigation of cases, and quarantine or other procedures necessary to enforce treatment. In large population centers the treatment of indigents in clinics is a simple matter. In smaller communities the problem becomes more difficult.

The complete handling of an indigent patient requires social treatment as well as medical treatment. Disease carriers are frequently found in the courts and in jails. Thus in his case work the health

officer comes in contact with the welfare worker, the court official and the police. This does not mean that the health department is to employ social workers or detectives. It means perferably co-operation with existing agencies performing these functions. It means recognition of the duties and responsibilities of each agency concerned, and the performance of such duties by the proper officials. This is the essence of the simplified venereal disease program.

Another point to be considered is the proper distribution of responsibility among the State, county and city authorities. In some States, including North Carolina, responsibility for the medical care of such venereal patients as require treatment at public expense is placed by law upon the county. In the early days of the campaign the States contributed liberally of their funds for the establishment and maintenance of clinics and the provision of other treatment facilities for the service of the local communities. Obviously the handling of individual cases, whether medical, social or legal, is a matter for local officials who are on the ground and who can handle the cases economically. A simplified program must recognize local responsibility for local work, and all case work is local work.

The one exception to this rule is that facilities for the detention of patients who require restraint while under treatment are best provided by the State. At present there is no place available in North Carolina for detaining such patients except the jail. Jails are not well suited for this purpose. The necessity for detention, either under court sentence or quarantine, is often so urgent that jails must be used. Handling this matter as a State project and providing for detention in State institutions would be more economical and would lessen the temptation for local officials to weigh the cost of maintenance over against the protection of the public health and permit the former to outweigh the latter.

Such an institution should be self-supporting. The advocates of institutionalizing venereal patients either by court procedure or quarantine, can do nothing better toward promoting the idea than to devise a method by which the patients can earn their own living while in the institution. The drain upon public treasuries for various purposes has become so great that additional burdens must not be imposed except for weighty reasons. A recent supreme court decision recognized the principle of personal responsibility for the transmission of venereal disease to another. If the character of an infected person is such as to require detention to protect the public, surely it is reasonable to expect such person to earn his own subsistence while being detained and treated.

2. *Educational measures.* There are two lines of educational effort connected with the venereal disease problem. One is the dissemination of information concerning the prevalence of venereal diseases, the harm they do and the methods of prevention and cure. This is distinctly a health department function. The other is the imparting of information to the young concerning sex and the contribution that sex makes to life. This fuction has been thrust upon the health authorities as a temporary emergency measure, but it really belongs to the educational authorities. Perhaps the most important end to be gained by sex education is not so much the diffusion of knowledge as the creation of proper, respectful, reverential attitudes toward sex. The attitude of an individual toward sex is formed during the adolescence period, supplemented perhaps by earlier influences. Obviously the schools have the best opportunity of any governmental agency to deal with this matter which is essentially a problem in character building.

At best the health department can come in contact with children during the adolescence period only spasmodically. For an outside lecturer to go into a school to discuss the sex problem tends to lift it out of its normal relationship and place an over-emphasis upon it which is undesirable. Accordingly, the health department has accepted responsibility for this kind of work only temporarily. It is now planning to discontinue the "Keeping Fit" campaign and other activities concerned with sex education and limit its own activities strictly to the health field. Of course, health officials recognize the importance of sex education, but it is outside of their sphere.

3. *Repressive measures.* As a part of the general program of venereal disease control the police function of enforcing laws against prostitution has been thrust upon the health authorities. This has created an anomolous situation not in accord with our governmental system and practice. In performing this function, health authorities must either supplant the police in law enforcement, or assume the function of directing police activity, either openly or surreptitiously. Either course would be based upon the assumption of police failure in the performance of duty and the superlative fitness of the health department for the task.

As a matter of fact, the police are responsible to the public for law enforcement the same as health officials are responsible to the public for disease prevention. If either police or health officials require stimulation in the performance of their duty, such stimulation should come from the public rather than from another governmental department. The police feel that the public is indifferent toward the en-

forcement of laws against sex offenses. The best way to stimulate police activity, therefore, would be to convince them that the public is really interested and really alert to the situation. Public opinion is the power that rules this country. It is within the province of health officials to educate the public as to the necessity for law enforcement to repress prostitution as a disease prevention measure. It is not necessary to assume responsibilities that properly belong to another department in order to have the other department's work done.

During the war when quick results were desired there may have been some justification for "short cut" methods that have no place under peace conditions. Successful government with harmonious relations between the departments is not promoted by one governmental agency prodding another into activity. Satisfactory law enforcement is the product of co-operation rather than strife. The health department and the welfare department can accomplish more by working with the police than by working against them. Agitators have advocated proceeding on an entirely different theory of government—one involving more nearly direct action. By a large faith in humanity and in the essential integrity of public officials, such as becomes a true believer in representative government, it is possible to steer a course against the winds of get-rich-quick agitation.

DIVISION OF RESPONSIBILITIES

The simplified program for venereal disease control means a division of responsibilities among the different departments of government and mutual recognition of the responsibility belonging to each department. It means also that each department of government will perform its own function and that no department will attempt to set up an autocracy over another. It means that everybody on the job should do his own work and not waste time trying to boss the other fellow. The respective functions properly belonging to the different departments of government may be enumerated as follows:

1. *Health department.* The responsibility of the health department in venereal disease control covers two points, medical measures and the educational work with reference to the prevention of venereal diseases. Medical measures include the treatment of patients, the detention of those requiring detention to protect others, the collection of information from reports and other sources, the investigation of cases about which information has been received, and other measures necessary in the proper handling of individual cases. These activities fall within the province of the local health authorities.

The basic importance of treatment as a factor in prevention will be recognized when it is considered that the venereal diseases tend to become chronic and patients remain infectious for a long period of time. If through proper treatment the period of infectivity can be reduced one-half, the new cases resulting from existing cases should be reduced accordingly. As a matter of fact the reduction should be greater, for cases under treatment would be expected to exercies greater precaution not to expose others to infection. In syphilis the possibility of prevention through treatment is especially promising. An untreated case of syphilis is thought to remain infectious for a period of four or five years. If recognized in the initial stage and promptly treated with arsphenamine the period of infectivity may be cut to a day or two after treatment is begun. Treatment is thus a more important factor in the prevention of venereal diseases, particularly syphilis, than in the prevention of any other communicable disease. In fact, the direct attack upon venereal disease is made by the provision of proper treatment facilities with supplemental provision for follow-up work, the detention of untrustworthy patients, the investigation of suspected cases and other measures that will help in the discovery and proper treatment of infected persons.

But the problem of getting people under treatment is an educational one. Thus if treatment constitutes the direct attack on venereal diseases, educational measures constitute the indirect attack or flank movement upon this scourge of humanity. The indirect attack by educational means may be appropriately undertaken by the State health department. Conducting an educational campaign which utilizes the excellent motion pictures now available and reaches people in rural communities requires considerable outlay for equipment. The initial cost can be borne better by the State than the local communities. The development of a method of campaign by using a field car equipment for this purpose is one of the achievements of North Carolina during the past year. It is now hoped that the North Carolina State Board of Health may find it possible to concentrate its efforts along this line, and eventually reach every community in the State. If this can be done there will be no excuse for anybody being ignorant concerning the methods of spread and the methods of prevention of venereal disease. This program is based on a broad faith in humanity, a faith that expects the race to keep facing forward and believes that the people can be trusted with information concerning vital facts of life.

.2 *Welfare department.* Responsibility for certain activities in connection with venereal disease control rests with the welfare depart-

ment where such department exists. In some States where there is no welfare department, it may be expedient for the health department to employ welfare workers. But in North Carolina where the welfare department is well organized with a superintendent of public welfare in each county it is neither necessary nor advisable for the health department to use its meager resources for the employment of social service workers to perform duties placed by law upon the regular welfare officers.

Welfare workers will frequently establish contact with venereal disease cases through the courts. Sometimes information will come from other sources and sometimes cases may be referred by health authorities for social investigation. Efforts for rehabilitation belong distinctly within the welfare department function. The point of contact between the welfare officer and the health officer is concerned with infected cases. It is important for welfare officers to recognize that proper medical treatment of such cases is basic to all social handling, and that co-operation with the attending physician or the health officer in securing proper treatment is both fundamental and essential.

3. *Police department.* Law enforcement against prostitution is a responsibility of the police department that should not be usurped by any other governmental agency. Support for vigorous enforcement measures should be gained by educational activities rather than by attempts to bring pressure to bear upon the police, through espionage or other questionable methods.

4. *Educational department.* The health department's part in the sex educational program through the "Keeping Fit" exhibit and other similar activities is merely an emergency measure. Eventually the schools must assume full responsibility for whatever governmental activities may be required in connection with sex education. It is believed that the sooner this fact is realized the sooner the matter will be put on a solid basis and the way cleared for the educational department to discharge its responsibility in the matter. In accordance with this view the North Carolina State Board of Health is planning to discontinue the "Keeping Fit" campaign and other work along sex education lines at the close of the present school year.

In conclusion then, from the point of view of the health authorities, a simplified venereal disease program means that health officials will accept responsibility for medical measures and for educational activities in so far as such activities relate directly to the prevention of venereal diseases. The police duty of enforcing laws against prostitution will be left to the police. The welfare work required in the

social handling of individual cases will be left to the welfare department. Activities in relation to the incorporation of instruction concerning sex in the school curriculum will be left to the schools. This recognition of the responsibility of different departments for the performance of different functions in connection with venereal disease control means a very great simplification of the program.

With reference to the health department function, it is expected that the application of medical measures and such auxiliary activities as may be necessary in carrying out treatment procedures will devolve entirely upon local authorities, while conducting an educational campaign concerning the prevention of venereal disease will be considered the special function of the State Board of Health.

Dr. Carlton, President: This very important paper of Dr. Knowlton's is now open for discussion. Dr. Knowlton has mentioned several features which have given all of us more or less concern, and I am sure that there are several here who wish to discuss it.

Dr. A. H. Lindorme, Wilkesboro: I think that there is no one measure in the problem of venereal disease prevention more important than that of education. My experience as regimental surgeon during the war was that there was a decided falling off in venereal disease in the regiment whenever proper lectures were given to the men. Venereal disease was looked upon as a joke, as something that would do no harm, but when it was presented in its full light and the harmful effects explained, it would do more good than bringing men before a court martial. After a lecture men would come to me for instruction and advice, and ask what effect former wild oats would have. When you get a man's personal interest and he himself wants to do something, you will have a sounder foundation than is possible in any other way.

SYMPOSIUM ON MATERNITY AND INFANT WELFARE

NORTH CAROLINA BIRTH AND DEATH STATISTICS WITH PARTICULAR REFERENCE TO INFANT WELFARE

F. M. Register, M. D., Raleigh

Director, Bureau of Vital Statistics, State Board of Health

Since the beginning of time census figures have been used in one way or another to find out the ebb and flow of the human race. We read in the Book of Books time and time again about the numbering

of the people (2 Samuel, 24-2) "For the King said to Joab the Captain of the host, which was with him, Go now through all the tribes of Israel, from Dan even to Bersheba, and number ye the people, that I may know the number of the People." "And Joab gave the sum of the number of the people unto David, and all they of Israel were a thousand thousand and an hundred thousand men that drew sword." Joab was King David's Director of the Census.

To more recent years we turn for the application of vital statistics in Preventive Medicine. While vital statistics are more valuable with age, the alert health officer and public health nurse are more interested in weekly, monthly and annual statements of the profit and loss of human lives. As the mariner steers his ship by the compass, so the health officer and public health nurse steers the ship of preventive medicine by the trend of human lives as indicated by births and deaths.

Dr. Creasy L. Wilbur has said: "Vital Statistics is the Cinderella of modern public hygiene. She sits in the chimney corner and sifts the ashes of dusty figures while her proud sisters, Bacteriology and Preventive Medicine go to the ball and talk of the wonderful things that they have done. But the princess slipper fits no other foot and when we descend to facts and not to mere empty bombast, vital statistics and accurate vital statistics are our sole dependence. The chief thing in the development of vital statistics is to conserve life and health, and secondly to furnish legal records of greatest value. The State wants facts—knowledge as to waste in infant life, in early life from preventable infection and in middle age from degenerative diseases. A complete system of vital statistics alone affords us the means of learning accurately the extent of such waste, the definite locality and causes, so that we may apply suitable remedies."

For statistical study human life is divided into different age groups. Shakespeare divides these groups in a most pleasing way which he calls the Seven Ages of Man.

(Jacques:) All the world's a stage,
And all the men and women merely players:
They have their exits and their entrances;
And each man in his time plays many parts,
His acts being seven ages. At first the infant,
Mewling and puking in the nurses arms;
Then the whining school-boy, with his satchel
And shining morning face, creeping like a snail
Unwillingly to school; and then the lover,
Sighing like a furnace, with a woeful ballad
Made to his mistress' eyebrow; then a soldier,
Full of strange oaths and bearded like the pard,

Jealous in honour, sudden and quick in quarrel,
Seeking the bubble reputation
Even in the cannon's mouth, and then the justice,
In fair round belly with good capon lin'd,
With eyes severe and beard of formal cut,
Full of wise saws and modern instances;
And so he plays his part; the sixth age shifts
Into the lean and slipper's pantaloon,
With spectacles on nose and pouch on side,
His youthful hose well sav'd, a world too wide
For his shrunk shank; and his big manly voice
Turning again toward childish treble, pipes
And whistles in his sound: last scene of all,
That ends this strange eventful history,
In second childishness and mere oblivion,
Sans teeth, sans eyes, sans taste, sans everything.

Our paper today deals principally with the first group—infants. The definition of infant is a child one year old or under. The mortality among infants is very high in North Carolina as well as in other States and is attracting a great deal of attention just now. Newsholme says "Infant mortality is the most sensitive index of social welfare and of sanitary improvements which we have." People careless of their offspring are careless of themselves. The principal causes of death among infants is prenatal influences, prematurity and lack of care. The remedy for this condition is left to other departments.

In North Carolina there were in 1920, 83,966 births. This would mean a continuous row of cradles placed side by side that would reach forty-seven miles. During 1920 there were 6,953 deaths of infants one year and under which would mean a row of coffins placed end to end that would reach 3.9 miles and added to these coffins 4,171 stillbirths occurring in 1920 which would reach 2.3 miles more, so you see while we have miles of smiles, we also have miles of tears. Now of these 6,953 infants, 42 per cent died from prenatal causes and a large per cent of the 4,171 stillbirths could have been prevented by proper care of the mother. So by having correct statistical data, the health officer and public health nurse can map out a definite program from which to work. We can give the number of births and deaths, the causes of these deaths, race, age, etc., in a particular locality. With this information in hand it is easy to set up a health department and have in view some definite object for which to work. Every physician must contribute his brick (viz., the reporting of births and deaths) to building the Mansion of Health. As Pharoh's task masters cried to the Children of Israel, "Wherefore have ye not fulfilled your task in making brick both yesterday and today, as heretofore?" The

Israelites answered and said, "There is no straw given unto thy servants, and they say to us, make brick, and behold thy servants are beaten, but the fault is in thine own people." So, The Bureau of Vital Statistics can not furnish the people vital statistics unless the facts are furnished the Bureau. See that the Bureau of Vital Statistics is furnished complete birth and death registration and we will tabulate them for you as to disease, age, color, residence, etc., and from this information valuable conclusions can be drawn. Every first-class medical man today thinks in statistics and figures. He is not content to know that the baby died and that it could not be saved by all the skill of himself or anyone else, but he begins to figure out the number of children in the State who die of this particular disease. If the number dying in this particular community is greater in proportion than those dying in the State. What is being done in the State to prevent this particular disease? And what is being done in this community and in each particular home? So closely allied to infant mortality is that much neglected field; obstetrics. Ignorant obstetrics is not only responsible in a large degree for a high death rate among infants, but to the high death rate among mothers due to the puerperal state—The cheapness of motherhood is taught by such outstanding facts as this—in 1919 there were in North Carolina 550 deaths among mothers due to the puerperal state—one death of a mother during that year for every 128 births. When you compile statistical facts in regard to infant welfare and motherhood in North Carolina and preach these facts in season and out, every mother and every potential mother will become interested, and this great waste of infant life will cease.

Dr. R. S. Bailey, Health Officer Vance County, Henderson: Just at this juncture I would like to read a very unique letter which my Department received, as it is so pertinent to what Dr. Register said:

Dr. E. J. Kehoe,
Dear Sir:

Will you kindly send me the "forms and postage" to send in the reports of births and deaths in my township, Nutbush, Vance Co.?

I have been registrar since Feb., 1919, and we have had three white children born in this territory in this time. Now if the negro women mothers had a carload of literature sent to them on the subject of nursing babies they would never look at a single sentence or pay any attention to any instructions given verbally. As far as deaths are concerned, we have never had an epidemic of any thing, and it is unjust to the limit to make taxpayers deny themselves to pay taxes for any such "*blooming* nonsense."

I have been looking after the health of the babies for *forty* years, and it has never cost the parents or the Government a cent. The babies are brought to me

from all over the county to cure their ailments, and I am glad to help them, as they are fully persuaded that a regular physician kills more babies than they cure with their drugs.

It is the law that a death must be reported to me before one can buy a coffin, but half the time I have to run them down weeks after the burial to get the parents to report to Raleigh.

However, I am going *to try* to find time to report to you, knowing all the time that it isn't worth a thousandth part of a picayune.

Very truly yours,

LUCY F. WATKINS,
Manson, N. C.

DR. CARLTON: It strikes me that the letter read by Dr. Bailey is rather typical of a great many midwives in North Carolina.

THE NURSE'S RELATION TO INFANT WELFARE

ROSE M. EHRENFELD, R. N.

Director, Bureau of Public Health Nursing and Infant Hygiene,
State Board of Health.

(1) *"The nurse's relation to infant welfare" is that of a means unto an end—the ultimate end being marked reduction of maternal and infant mortality, and the nurse an essential factor in effecting it.*

The fact that over one-half the infants' deaths are chargeable to causes antedating birth (therefore not touched by current methods in health work of educating the mothers and only partially reached by prenatal work) is THE PROBLEM that challenges the attention of the public health profession today.

(2) The *nurse's relation* thereto *must be the same as her relation has always been to the most urgent need for her service, namely, a direct relation and a personal contact.* First as a woman and second as a nurse she is *the* worker (endowed by nature and prepared by training) best fitted to establish direct relationship with the home and personal contact with the mother; so public health nursing is recognized as fundamental to any child welfare program and a vital educative function.

As child welfare in the last analysis is largely dependent upon certain social, environmental and economic factors, the question arises, "What does the American child need for growth and development consistent with his dignity as a future American citizen?" The answer is embodied in MINIMUM STANDARDS OF CHILD WELFARE (representing the most expert opinion on the needs and rights of childhood) which offers an ideal that is considerably in advance

of present day provision for child welfare. Among other things they recognize that the protection of the child must begin with the protection of the mother, and demand that care during pregnancy and confinement and instruction in the hygiene of maternity, infancy and childhood be made available for *all* mothers through such agencies as prenatal clinics, maternity hospitals, maternity care in the home, children's health centers and provision for a system of public health nursing adequate to reach every mother and child. (They emphasize especially, the need for a family income adequate to enable mothers of young children to stay in the home instead of going out to work, with the consequent neglect of home and family.) This is the ideal that as public health workers should be ever before us.

What the relation of the nurse to infant welfare in this State should at present be, can best be determined from the story told by statistics:

The 1917 birth rate of 74,795 was offset by 11,749 deaths under five years (one out of every six); 7,825 under two years, due to three principal causes:

(a) *stillbirths,* (3,152).
(b) *diarrhea,* (2,626 babies' deaths): 1,456 under one year,
: 1,170 in second year.
(c) *congenital debility,* lack of care, etc., (most of which occurred during first month of life) (2,046).

4,672 deaths under two years from diseases largely preventable by proper education of the mother in care and feeding; 3,153 stillborn babies, many of whom might have been saved by a reasonable knowledge of prenatal hygiene. These figures together with 4,000 known midwives (and possibly one-half that many more) indicate our State's particular problem. The all too frequent (a) adverse environmental conditions of the rural community, together with (b) lack of appreciation of the economic value of human life and (c) the deplorable fact that the need of a veterinarian is more often realized and heeded than the need of a physician, add to the complexity.

The achievement of the 269 largest cities of the United States in attaining an infant death rate of 87 per 1,000 born alive (as compared with 131 a few years ago—or even higher) denotes progress to be proud of and our consolation is in the fact that it shows American mothers can be counted on to support health officers and private health agencies in their campaign against infant mortality.

(3) The *nurse's relation to infant welfare* is that of the heretofore missing-link between the health department and the home. While the public health nurses may be guilty of having diminished to some

extent the rank of private duty workers, thus placing to a large degree upon the public the responsibility of nursing their own sick—their entrance into the *rural field* as pioneer workers primarily to lessen the uncertain chance of motherhood and babyhood and to thus serve the most sublime profession (that of motherhood), more than compensates for their action. They are mindful of their obligation to train the public to meet the responsibility placed upon them and—taking advantage of the opportunity that is theirs for reaching people in greater numbers (the sick and the well, county as well as town)—the public has gained by the knowledge they impart.

(4) The *nurse's relation* then *to infant welfare is that combination relationship of social worker-nurse-teacher and guardian*: social worker in adjusting environmental and economic conditions, guardian of the infant, and teacher of *all* classes of mothers—the expectant mother, the nursing mother, the unmarried mother, the grandmother and the mother-in-law (with the mammy and the granny-woman thrown in).

(5) As 600 women die in childbirth in North Carolina every year, in the nurse's relation to the expectant mother and the young mother of children under five years lies her greatest responsibility. She owes it to the former to convey to her in understandable language: (1) the necessity for proper medical attention at confinement; (2) importance of supervision during pregnancy—including early physical examination, urinalyses and pelvimetric measurement; (3) that neglect of her welfare during pregnancy (permitting overwork and disregard of simple rules for good home care as to diet, sleep and rest, clothing, bathing, exercise and outdoor life, mental habits, etc.) affects the baby adversely; (4) what the danger signals indicating prompt medical service are; (5) the help to be obtained by registering (as a prenatal case) with the State Board of Health; (6) the necessary preparation for confinement, including arrangements for housekeeping during her incapacity, which will remove the danger of too short a rest period after childbirth; (7) what should constitute proper care during the lying-in period; (8) what should be the daily habits of a nursing mother to insure health and a good supply of breast milk; and (9) the value of birth registration.

In justice to mother and child, the nurse—whether a public health worker or private duty nurse—owes it to the young mother to teach her:

1. The care of the newborn as well as daily routine of the normal baby during the first year.
2. The importance of breast feeding.

3. Indication for weaning.

4. Preparation of supplementary or artificial feedings, care of milk, etc., and to encourage adherence to a formula and hours of feeding prescribed for each individual baby, and to make known dangers of improper feeding.

NOTE: (Pictures were shown here illustrating how the nurse educates the rural parents and the results obtained.)

No nurse is worthy of her calling who does not emphasize the need of screens, sufficiently large covered garbage pails, sanitary privies, and their relation to infant welfare.

Very discrediting to the State is the comparison of "diarrhea and enteritis" mortality under two years with that of Virginia and South Carolina. If same were reportable, it would insure attention of public health nurses more promptly, as well as better results.

Unless especially provided for as a group, the child of pre-school age should be included in the infant welfare program. Present day theories of proper nourishment; training and habits; physical care to prevent defects or remedy them; as well as necessity for protection from contagions and periodical medical examinations and vaccination against smallpox should be impressed by the nurse if the child is to reach his first day of school in condition to benefit from the opportunity that is his.

"I have been appalled at the task of reducing infant death rate in Edgecombe County since the fifty-seven varieties of midwives assembled with us," was the comment of the county public health nurse. The nurse's relation to this particular problem of infant welfare is covered in the paper to follow.

With one other group of mothers should the nurse establish a relationship—the future mothers. To encourage this we are issuing certificates and pins to girls over twelve who complete a course on baby care given by a graduate nurse. (124 children in eight counties have earned certificates—20 of them colored.)

It is in the capacity of health teacher that the public health nurse makes her greatest contribution to infant welfare. This fact is being recognized and one State reports seventy-four nurses under supervision of the State Health Department (56 of whom are paid by the State). This is the method of dealing with the problem destined to be the most effective in declaring "safety zones for babies."

THE MIDWIFE A FACTOR IN INFANT AND MATERNAL WELFARE

KATHARINE MYERS, R. N.

State Board of Health

When public health workers are engaged in their "favorite indoor sport" of juggling statistics, nothing receives, nor deserves, greater applause than the figures showing the remarkable decrease in such preventable diseases as typhoid fever, diphtheria, and tuberculosis. But the diseases caused by pregnancy and childbirth are largely preventable and yet in twenty years there has been no reduction in the maternal death rate and it still stands second only to that of tuberculosis among women from fifteen to forty-four. Of the sixteen largest nations, United States ranks fourteenth in this respect and North Carolina contributes to this unenviable record about 575 women per year. The hospitals are filled with women suffering from injury or neglect at childbirth and uncounted numbers are dragging through years of semi-invalidism and inefficiency. These are very real facts to public health nurses who perhaps are in closer touch with conditions than any one else.

The welfare of the child is wrapped up in that of the mother. More than one-half the babies who die during the first year of life die from causes related to the condition of the mother, five times as many babies die in the first month of life as in the second and fourteen times as many as in the twelfth month, most of them babies who were born too weak or too diseased to live and some because their mothers did not know how to safeguard their breast milk nor appreciate the importance of breast feeding.

So much for the problem—now, what is needed to protect maternity and infancy? It can not be denied that the health and very life of the mother are dependent upon the character of the obstetrical service she receives. The practice of obstetrics has become a highly specialized science which is difficult to apply to the salvaging of rural mothers and babies.

The distressing lack of medical service in our ten super-rural counties, the concentration of physicians in the towns, bad roads, absence of telephone connections, poverty, ignorance, and custom all have combined to foster a service enormously powerful for good or evil. 4,000 midwives are known to the State Board of Health, approximately 34,000 deliveries were attended by them in 1920. 20% of the white and 80% of the colored employ midwives.

The majority of these women are dependable, self-sacrificing, poorly paid. They refuse no call, day or night, rain or shine. Most of them are past middle age, unable to read and write, and have had no training except that gained in rare instances by nursing for and assisting local physicians. Occasionally one is found who reads a "doctor book." They are still plodding along with the knowledge handed down from generation to generation, some of it valuable but interwoven with a mass of misinformation, superstition, and unbelievable fatalism. Their deep ignorance of anything resembling modern asepsis puts into their kind and faithful hands the weapons of destruction.

In practically every European country midwives are under strict State control. They are required to undergo a course of thorough training and their practice is carefully regulated by legislation. And so, although midwives are universally employed, Sweden, for instance, shows the loss of but one mother for every 430 babies born alive, while the United States loses one for every 150 and North Carolina one for every 127.

The State Board of Health is awake to the situation and is calling for the co-operation of health officers, physicians, nurses, registrars and all who will enlist in this crusade to remove the hazards of motherhood.

Four things are required of midwives by State law: registration, use of silver nitrate solution, reporting of cases of ophthalmia neonatorum, reporting of births. Some of the county health departments also require registration and in a few instances are undertaking instruction and supervision, which is highly desirable since for obvious reasons the county can enforce a higher standard for the practice of midwifery than a State agency can.

The county nurses are especially valuable for making the personal contact and demonstration of nursing technique, so necessary to success in teaching midwives. In 25 counties of the State this instruction is going on, the nurses following a syllabus prepared and outlined by the Bureau of Public Health Nursing and Infant Hygiene.

In an effort to improve conditions in the counties as yet unreached by official health agencies, the Bureau of Public Health Nursing suggested a series of conferences and offered the services of a nurse to try out the plan in co-operation with the Bureau of Epidemiology under which the midwives are registered. Letters are sent out in advance calling them to a meeting, specifying place, date and hour. After a few conferences it was evident we were on the right track, for the women were so eager to learn, and so grateful for instruction,

that the 2 to 5 hour lesson, with rest periods as needed, seemed all too short.

Since November, 1920, 73 such conferences have been held in 52 counties, with a total attendance of 889 midwives, 106 of whom were white, 2 of them men, 97 of these were ignorant of the use of silver nitrate, and 36 had never reported a birth.

The meetings are usually held at the Court House, sometimes at the depot, a school house, a church, or a doctor's office. Enrollment blanks are filled out for those present and names of others secured. In this way many have been located who were unknown to any official agency. In Mecklenburg alone, nine were found who, with a record of from two to twenty-five years practice, had never reported a birth.

In opening the meeting it is necessary to explain its purpose as the vaguest ideas prevail regarding it, in spite of the clear statements sent out in the notification letters. We take up in detail the laws relating to the practice of midwifery in this State and reasons for same, then the mental attitude and qualifications, character, physical fitness and habits desirable in midwives. Their status and relation to physicians needs defining, especially in the "black belt" and every effort is made to inculcate in them a feeling of regard and respect for his opinion and advice, and to look upon him as their friend and counsellor.

They are told of the value of prenatal instruction and asked to report expectant mothers to the Bureau of Public Health Nursing for the series of advisory letters.

Some of the ailments of pregnancy and indications of abnormal conditions are pointed out so that they may wisely advise as to reporting danger signals to a physician, testing of urine, etc. If time permits, they are told what instruction they may give in regard to hygiene, diet, care of the breasts, preparation for confinement, and so on.

The midwife's own preparation for a case, her bag and supplies, her garments, cleaning of room, preparing bed, boiled water (hot and cold) and lysol solution, and scrubbing of the patient for delivery are discussed and demonsrated as simply and freely as possible. At this point in the lesson, if a physician can be secured he is asked to instruct them in the conduct of labor.

Some of the complications of labor are brought up as instances of when to call a doctor—such as ante-partum hemorrhage, too hard or too long labor, breech, hand or cord presentation, patient weak, pale, or chilly, delay in twin births, severe headache, blindness, convulsions. Also some that may arise later as post-partum hemorrhage, stoppage

of flow, chill, rise of temperature, red and swollen breasts. They are told what to do while waiting for the doctor.

As much of nursing technique as is possible is given concerning the care of the baby.

Throughout the lesson the points most emphasized are these:

1. The State laws;
2. Responsibility of the midwife;
3. Danger of vaginal examinations;
4. Necessity for absolute cleanliness;
5. Obligation to call for medical aid;
6. Prevention of eclampsia;
7. Protection of baby from infection of eyes and cord.

The great task now confronting us is to devise ways and means to supervise and train this body of women, discourage their employment where medical service is adequate, eliminate the unfit, and bring speedy relief to our long neglected mountain mothers, countless numbers of whom are denied either medical or midwife service.

Establishing training centers as has recently been done in Charleston, S. C., and enlarging and amplifying the plan now operating are under consideration.

The greatest gift in the power of preventive medicine to bestow has too long been withheld. The obligation bears heavily upon us, no less than upon those who "go down to the sea in ships" to observe the rules of Birkenhead and carry on with high endeavor the ideal embodied in that old phrase "women and children first."

In the absence of Dr. Wortham Wyatt, a motion was offered and carried that his paper on "Infant Mortality: A Direct Responsibility of Health Authorities" be read by Dr. J. S. Mitchener, and this was done.

INFANT MORTALITY: A DIRECT RESPONSIBILITY OF HEALTH AUTHORITIES

Wortham Wyatt, A. B., M. D., Winston-Salem

In considering the subject assigned for this discussion, namely, "Infant Mortality: A Direct Responsibility of Health Authorities," I deemed it an excellent opportunity to mention preventive medicine, not confining myself strictly to infantile statistics, but to handle the question more or less broadly. So, with this idea, I am asking you to bear with me for a few moments.

If practicalities ever reach our ideals, then infantile diseases will be a thing of the past. It will be only by the consistent practice of preventive medicine and the education of the people of our county that we can prevent such statements as "300,000 children under five years old died in the United States during the first year of the war," and "one-half of these deaths might have been prevented by proper care" (1). So, it will be the duty of not only health officers, but of every man who is now and will be then classed as a pediatrician or general practitioner to assist in the further education of the public.

In 1920, in the registration of the United States, there was, approximately, a weekly average of 1,842 cases of diphtheria with 92.0 deaths, 1,222 cases of scarlet fever with 21.0 deaths, 1,299 cases of tuberculosis with 612.0 deaths, 2,187 cases of measles with 31.0 deaths reported (2). Or, to limit myself more strictly to infancy, there were in 1918, seven thousand, four hundred and eighteen deaths due to diphtheria, pertussis, scarlet fever, measles and tuberculosis (3). In 1917, there were in the United States, 48,231 deaths in infants under two years old due to diarrheal diseases (4). In 1918, there were 28,306 deaths in infants one year or younger caused by diarrheal diseases (5). Are not our medical forefathers responsible, to a certain extent, for not only these deaths, but, from an economic standpoint, responsible for the after-results of these diseases in those that did not die, for the loss of time, and for the expense entailed? And will not we, the medical men of today, be even more responsible if the same conditions prevail twenty-five or fifty years from today?

Please let us consider the individual diseases very briefly, in order that we may either deny or shoulder the responsibility. I believe the greatest scourge of infancy today is ileocolitis and other diarrheal diseases. As far as I can learn, Dr. Kerley considers the etiology of these diseases largely, if not entirely, bacteriological (6); Dr. Holt classifies the etiology as largely bacteriological, toxic or chemical, and mechanical (7); Czerney recognizes food, constitution and infections (8); Drs. Morse and Talbot incline to theory that bacteria or bacterial products are the causative factors (9). At any rate, I believe that you will agree with me that all of these factors are essentially important. With this as a basis, does it not center itself into one fact: if we teach the mothers how to feed their babies, shall we not eliminate these factors? If we can make the mothers realize the importance of breast-feeding, or make them take the necessary precautions in the preparation of cow's milk, and teach and persuade them to feed their babies and older children intelligently, shall we not, to a great extent, have removed the causes as taught by the above mentioned men?

Along this line, it is interesting to me to note that Schereschewsky, the present Assistant-Surgeon-General of the United States Public Health Service, considers heat as the greatest, or at any rate among the most important causes of summer infant mortality (10), considering the point along the idea of the actual outdoor heat, the indoor heat, through ventilation, clothing, and, of course, the metabolism of the infant in hot weather. Although primarily interested in and discussing the prevention of all cases, nevertheless some cases are going to develop, and our efforts must also be directed towards controlling these diseases. Granting that the condition was primarily not a bacterial one, before the case has recovered, the bacteria have entered in and are largely the responsible factors. This being true, the infection calls for the most rigid care of the intestinal discharges. The discharges are all potentially, if not actually, contaminated with the causative organisms and may contain millions of the organisms. The discharges, the clothing and the bodies of the infants must be disinfected to prevent further spread of the disease. So, our efforts should be directed toward the regulation of the environment of the infant population, which can be accomplished only through the education of the mothers, nurses and other attendants, who must be brought to realize the possibility of the transmission of diarrheal diseases through different channels. The control of these diseases narrows itself largely into a question of personal hygiene for those responsible of the care of these sick infants. If they, the attendants, themselves are free from the infecting organisms and exercise due care with regard to the feeding, cleanliness and clothing of the infants, and to the exclusion of flies, much will have been accomplished in the control of these diseases (10A).

If you will pardon a reference to our own City Department of Health, I would like to say that we have established Baby Stations for both white and colored babies and mothers for the past two summers. We open these clinics or stations early in May and continue them until in October. I do not mean to claim that these stations will account for it, but from the annual report of the Health Officer of Winston-Salem, I find that in 1918 we lost from diarrheal diseases, 139 babies; in 1919, 64 babies; and in 1920, 55 babies. Possibly after several years I might not have this story to tell you, but that is our status today.

In considering measles, pertussis and scarlet fever, it seems to me most plausible that, if we could impress on the parents the seriousness of these diseases and their complications, teach them the earliest symptoms in order that they might segregate or separate any suspicious

looking case early from the well children, and make them realize the importance of a very strict quarantine, we could possibly make these diseases as much a thing of the past as typhoid fever is. I realize that this is probably theorizing, and that those of you who have had more experience will know the futility of my ideas. But even granting that my ideas are impractical, can we not make more effort to control these so far unpreventable diseases among infants? By attempting to postpone these diseases until the children are older, even though we do not cut down or reduce the morbidity reports, are not the chances better that we will reduce the mortality reports, on acount of the fact that a child eight or ten years old has a greater resisting power against these diseases than an infant?

Personally, I think it is as much a disgrace to have a case of diphtheria today as it is to have a case of small-pox or typhoid fever. In the city schools of New York, Philadelphia and Rochester, N. Y., they have, I understand, almost entirely eliminated this disease. When you consider that 88% of adults, 80% of persons from 10 to 20 years, 70% of children from 5 to 10 years, 60% from 3 to 5 years, and 40% of children from 1 to 3 years have a natural immunity against diphtheria (11), it does seem to me almost criminal to allow any of our children to have this disease. We know full well that we do have a positive, definite, very simple, and, in the hands of a competent physician, a method devoid of any risk of determining an individual's suceptibility, namely, the Schick test or reaction, and, if susceptible, then an equally positive, definite harmless and equally simple procedure to confer an acquired immunity, namely, the administration of toxin-antitoxin, which immunity is said to last from three to four years, (11A), and probably longer.

The prevention and control of infant mortality due to tuberculosis would be a much more probable thing if the public were educated to the point of suspecting the early symptoms and demanding an annual chest examination, or if the diagnosis of early or incipient pulmonary tuberculosis in infants, children and adults were easier, or if our general practitioners would make these diagnoses, making a detailed, careful examination of the lungs with the chest bared. As a result of these conditions not being present, the majority of cases of pulmonary tuberculosis are far advanced before a diagnosis is made, and, therefore, the children of these tuberculous parents cannot possibly avoid infection. And right here I wish to emphasize the fact that the majority of the better men are today advocating the idea or theory and are teaching that all tuberculous individuals receive their initial infection in childhood, and that tuberculosis developing in later life

is only a lighting up of a latent process. Does not this sound reasonable? And does it not, therefore, granting that it is true, make it all the more important that we protect these children and babies at a time when they are unable to protect themselves?

Finally, it is of the utmost importance that the expectant mothers be brought to the point where they will not be satisfied with the ignorant midwife, but will only be satisfied to report to the competent medical man for observation and treatment as soon as she discovers that she is pregnant. Let us impress upon every women the importance of urinary examinations and the taking of her blood pressure at regular stated intervals, the importance of dental care, the importance of diet, and the necessity of our making pelvic measurements. By doing these few simple and, I believe, easy things, shall we not have the women in better physical condition at the time for delivery, and shall we not, therefore, have given to these newborn babies a better start for their fight for existence? To carry out these ideas, some of us have found it worth while to make use of two bulletins, Prenatal Care and Infant Care, published by the Children's Bureau, U. S. Department of Labor.

In conclusion, I will not attempt to shirk or deny the responsibilities of not only the health authorities but of every medical man as well, and it is only by the long continued fight for the better education of the mothers and fathers of today and tomorrow and the constant struggle for the prevention and control of diarrheal conditions and other infections of infancy that we shall be able to reduce our infant mortality, so that, instead of having a comparatively high infant mortality rate, 101 per thousand, (12) comparing favorably with Japan, Spain and Germany, we shall have the lowest infant death rate of any nation in the world.

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Dr. Carlton: I recognize Dr. Sidbury, who is on the program to open this discussion.

Dr. J. Buren Sidbury, Wilmington: If I may suggest it, let us recapitulate some of the things that have been said. First, what particular phase of disease cause the greatest infant death rate in the Registration Area of the United States? If I may summarize in a few words, the causes of infant mortality are many and complex. To quote:

"The health and vitality of the parents, the condition of the mother during pregnancy, the care of the mother during labor, the feeding and hygiene of the infant in the first few months of life are all important factors in preserving infant life."

As has been said today, the greatest factor in infant mortality is congenital debility. The next question is: What is congenital debility? If I may, I would like to read from the New York Bulletin, which says:

"Congenital diseases bear no relation to errors in infant hygiene and dieteties, but are dependent within certain limits upon conditions in the mother, operative before, at, or shortly after birth of the child."

The New York Board of Health states still further:

"A point has been reached in the supervision of infancy where it appears that the number of infant deaths from congenital diseases is so great that it controls in large measure the curve of infant mortality. In fact, for several years past, statistics have shown that the number of infant deaths from congenital diseases alone was almost equal to or exceeded that of diarrheal diseases and respiratory diseases combined."

As far back as 1913, the bureau realized that any further material reduction in infant mortality rate of the Greater City must come throught organized effort to supervise expectant mothers. Then, in their opinion, the first and foremost factor in reducing infant mortality is getting after congenital debility. Of every thousand babies

born alive, 101 died before they became one year of age. Of the forty-two per cent which died in the first month of life, seventy-five per cent are due to congenital diseases. From these figures we see that our first trench is the reduction of congenital diseases. How shall we do this? First and foremost by establishing prenatal clinics in every city and county of our State. Let the State Board of Health be the clearing house, and each county and each city in the State be the offspring. The State Board of Health will act as a clearing house and guide and direct the efforts of the individual community.

What consists in prenatal care? The ideal way would be for each woman who becomes pregnant to register such condition at some central office and be sent literature in regard to her health and her care during pregnancy, and during puerperium. It is absolutely untrue that prenatal care ends with the birth of the baby, after it carries the mother safely through puerperium. The mother must be ready to bear another child if we fully complete this care. If the mother is left unfit to bear another child, our care is not complete. Prenatal care is the most important factor in the reduction of infant mortality. Our president has stated already a very important thing. Whenever any baby is born in Winston-Salem, the mother receives a pamphlet of instructions as to the care of her baby. I congratulate you, Mr. President, upon taking a forward step in North Carolina in carrying out the prenatal care clinic.

If I may, I will also read a few more statistics, to compare the infant death rate from congenital diseases:

"Over forty per cent of all deaths during the first year of life are caused by congenital diseases.

Approximately seventy-five per cent of all deaths during the first month of life and ninety per cent during the first ten days of life are due to congenital diseases.

While infant mortality rate from second to the twelfth month of life has shown a decided reduction during recent years, the rate during the first month of life has remained practically stationary.

The infant death rate from diarrheal and respiratory diseases have progressively declined during the past ten years, while change in rate from congenital diseases has been inconsequential.

Over forty per cent of all deaths during the first year of life reported for 1918 took place during the first month of life.

Today congenital diseases occupy the unenviable first place in list of baby-killing diseases, with respiratory diseases second, and diarrheal diseases third. In fact, during 1918, out of 12,657 infant deaths, 2,993 are ascribed to respiratory and 2,032 to diarrheal diseases, a

combined total of 5,025 as against 5,344 infant deaths from congenital diseases. More infant deaths from congenital diseases than from respiratory and diarrheal diseases combined. Such figures must give cause for reflection and point the way to a future program for infant mortality control."—(New York City Health Bulletin.)

From these figures we see that the death rate from congenital debility practically totals the death rate for all other causes among infants born alive. We must meet congenital debility, and meet it fair and squarely. How shall we do it? By establishing baby health stations in every city and county in North Carolina. This is absolutely a possibility, as has been demonstrated by every city and town that has done it. What is a baby health station? What are the factors? One of the most important is the prenatal clinic. A most important point is that the baby, as soon as he is an hour old, should be registered in the baby health station, just as he is registered on the cradle roll of the Sunday School. That only will enable us to detect many deaths which otherwise would go undetected. It is not only a station for the distribution of milk, but a center of education. We can not accomplish large results unless we adopt the method of education, as well as that of treating the individual who happens to need help at that time.

Then there is the Little Mother's League. Teach the girls that the pacifier, the dirty bottle, the dirty nipple, are not only a means of making the baby sick, but will cause its death. The little mothers will go home, see the abominable pacifier in the baby's mouth, and take it out and throw it in the fire. This and the other things will help not only the babies in this generation, but will help these little mothers when they themselves have babies.

The next thing is the health nurse. The nurse will follow the baby on to the end of its first year. Her field is that of spreading information and education to those mothers who will gladly and willingly receive it.

One more important factor in the baby health station is the care of the pre-school child. I guess many of us have seen lots of fat babies up to one year of age and have wondered what becomes of the fat baby from two to six years of age. They are strikingly absent. One factor is that, not infrequently, after the baby passes its first milepost, another baby enters the household and the first baby is left largely to take care of itself. It is neglected, not only by the mothers, but by the medical profession. The pre-school age has been badly neglected. Just as prenatal care takes care of the infant, so pre-school

care will take care of the pre-school child until he goes to school at his sixth year.

In regard to midwives, who are a very important factor in raising or lowering the death rate of our children, an important point was brought to my attention in Asheville two years ago, at the meeting of the Southern Medical Association, that the midwife is here to stay. She will stay here longer than we shall. So the only broad and progressive thing to do is to take her and teach her the important facts of infant welfare and hygiene. People will choose whomsoever they please to deliver themselves or their wives. It is our prerogative to educate the midwife so that she will not be a menace.

Breast feeding, complementary and artificial feeding have been taken up, and I wish to say that one of the great factors in our Southland is that too many babies are weaned prematurely. The baby has colic, the baby has this or that, and is taken off the breast. As a result, when the summer comes, the baby has diarrhea, and the baby goes out unexpectedly and untimely. The milk station, where milk may be prepared, is one means of combatting this mortality. Breast feeding can be continued longer than it is. Eighty per cent of doctors' wives can nurse their babies from three to four months longer than they think. (I take doctors' wives as an illustration because they are, perhaps, the hardest patients we have to deal with.) Eighty per cent of all women, I would say, can nurse their babies longer. We can encourage the mother to nurse her baby longer by showing her that by taking the baby off the breast she decreases his chances by twenty-five to thirty per cent.

Another point: I wish the North Carolina Health Officers' Association would go on record as taking action that no milk shall be sold as baby milk which has a higher percentage of bacteria than 30,000 bacteria per c.c. In my own town I have seen milk sold, labeled as baby milk, with a higher content than 100,000 bacteria to the cubic centimeter. 100,000 bacteria to the cubic centimeter is not baby milk. I think that the North Carolina State Board of Health should set some standard so that milk with a higher content than 30,000 could not be sold as baby milk. It is all right to sell the milk, but not as baby milk, if it contains more than 30,000 or 40,000 bacteria.

One more point: Diphtheria and vaccination. You have very few deaths from smallpox, but you have had cited to you today that the death rate from diphtheria is practically the same as that from typhoid fever and diarrheal diseases. We should not have any more deaths from diphtheria. The people in North Carolina are willing to be led just as fast as we doctors wish to lead them. In Wilmington

we have treated between two and three thousand children in the schools and in private practice with the Schick test with no untoward symptoms. One or two nurses had a reaction, with fever of about 103 or 104, but no children did. In New York the Schick toxin-antitoxin is put on the same level with smallpox vaccination. It is recognized by the authorities as reducing diphtheria. I hope with the wise guidance of Dr. Mitchener, every county in the State will see that every child in the county is made immune to diphtheria within the next few years.

Dr. C. W. Armstrong, Salisbury: (Addressing Dr. Sidbury): Do you advocate weaning every child when it becomes a year old, regardless of the season of the year when it attains that age? Most pediatricians, I think, advocate this, regardless of the season of the year.

Dr. W. S. Rankin, Secretary State Board of Health, Raleigh: I think that Dr. Sidbury's discussion of this symposium has given a very practical turn to the whole thing. He suggested a very definite course of action, and one, I think, that should go further than mere suggestion—one which should be carried out. His suggestion of county prenatal clinics, where women could be registered to come for advice in regard to this condition, and in order to discuss congenital debility, is a perfectly practical and valuable public health measure, and I think that this Association should see to it that it be carried into effect. I promise you, so far as the State Board of Health is concerned, the fullest sort of co-operation. I move that the Chair appoint a committee to confer with the State Board of Health and draw up a detailed plan for county prenatal clinics. I think that such a committee should include Dr. Sidbury, as chairman, and it should also include the State Directing Nurse, Miss Ehrenfeld. It ought to include a county health officer and one of the best county health nurses, and perhaps Dr. Root, who is Consulting Pediatrician to the State Board of Health in Raleigh. I do not want to assume the prerogatives of the Chair, but I do think that it should be a composite committee with certainly Dr. Sidbury as a member. It is a problem that, when it comes to relative values, stands head and shoulders above some of the things upon which time is being wasted.

Dr. Rankin's motion was seconded by Dr. R. H. Lewis, and carried.

Dr. J. A. Morris, Oxford: As to the matter of the use of toxin antitoxin, at a recent conference of the health officers there was some little shade cast over its use because of a rumor of some bad effects

had somewhere. I can not give any idea where it was, but I have already talked to some of our people and they are favorably inclined to its use if it is safe. Something was said of a certain output that had too much toxin for the antitoxin, and bad results were had. I would like to know if a health officer can obtain a product absolutely safe, so that no bad results will follow. Perhaps Dr. Sidbury can give me this information.

Dr. J. S. Mitchener, Director, Bureau of Epidermiology, State Board of Health, Raleigh: In discussing this symposium, I wish to speak first of the work among the midwives which has been done by Miss Myers and Miss Manning, who were loaned to my Bureau by Miss Ehrenfeld.

The first thing we are trying to impress upon the midwives is that they are not doctors and are to take the physician's part only when he is not with the patient, and, then only in normal cases. Great emphasis is put upon cleanliness, what not to do, the observance of the State law in regard to registering births, the use of silver nitrate in the babies' eyes, and that they should not make vaginal examinations. Three or four hour conferences are held in each county, and the attendance at these conferences is usually very good. The midwives show great appreciation of our efforts and are as willing to abide by the laws governing them as any set of people I know of.

It is my aim to be able some day to send a good nurse into each county to have conferences each day for a week. This nurse should be provided with a manikin and instruct the midwives how to conduct a normal labor, for this is what they are there for, and until they learn the principles involved, we shall continue to have the horrible results which have followed births all these years.

I might state that we try to get some physician to come to these conferences to talk to the midwives. I have seen but one who has any objections to our method. On the other hand, complimentary remarks of the work of these nurses has come repeatedly from the profession and the midwives themselves.

The second point I desire to discuss is toxin-antitoxin. My whole heart is wrapped up in prevention of diphtheria. The death rate in North Carolina has been practically at a standstill. Last year we had about 30 more deaths than the year before. This made the number of deaths from diphtheria just about 60 less than typhoid fever. It is with toxin-antitoxin that the men in public health work in North Carolina will be able to demonstrate to the State that they have done

a service. Those who have gone before us claim that the reduction in typhoid fever is a result of their efforts in this field.

Early in the year I visited New York City Health Department to confer with Dr. Harris and Dr. Zinger about the use of toxin-antitoxin. I might state that they were enthusiastic over the results of their work, inasmuch, as they were finding that 90 per cent of those treated over four years ago are still immune. They approve of toxin-antitoxin being administered to all between six months and six years of age without the use of the Schick reaction.

The merits of toxin-antitoxin must be presented to the medical profession in each county. Every county quarantine officer should take this matter up with his local Medical Society. From my office, a circular letter and a bulletin printed by the New York City Health Department will be sent to each physician in the State. Already we are anticipating giving toxin-antitoxin in about ten counties in the State at the same time that we offer typhoid vaccine.

Let us bear in mind that if we will but immunize every child between six months and six years of age in our State with toxin-antitoxin, we can reduce the number of deaths from diphtheria 75 per cent.

Dr. R. A. McBrayer, Sanatorium: In Dr. Wyatt's paper there was one thing mentioned which I would like to emphasize a bit more fully. At present there is a very strong tendency to the opinion, mainly, I am inclined to think, among the more radical men, that all infection with tuberculosis takes place in infancy and young school life. Things like that are all right for doctors to study. They must be worked out. But we must not teach the public that too strongly, because the Von Pirquet test in school children will not bear it out that the infection is there. The new modification of the Von Pirquet is not to scratch the arm but to put it in intra-cutaneously. The second reason why I am not so strong for the theory that all infections occur in childhood is because the complement fixation test is not positive nearly as often in children as in grown people. The other thing is that at autopsy the pathologic findings of tuberculosis are not nearly as high in children as they are in the adult. So I do not see that, as men who are meeting the public, we could afford to teach them that infection in tuberculosis occurs in early life. If we did that, what would be the result? It would break down part of the teaching that the State is doing. We are teaching that you must shield the face when you cough or sneeze and dispose of your sputum to keep from infecting anyone. The main thing is that, if they are not going to be

careful about infecting adults, their carelessness may result in infecting little children. So I think that it would be a serious mistake, when we are so far from proving that all infection, or even most of it, occurs in early childhood, to teach that theory to the public.

Dr. C. B. McNairy, Superintendent Caswell Training School, Kinston: I would just like to call your attention to one or two things which I think would be of interest. There are born in North Carolina each year 350 to 450 mentally defective children. If there is anything to be hoped for, or anything to be done, this condition must be recognized early. One form of mental defectiveness upon which we now look with a great deal of hope is that form of defectiveness known as Mongolian idiocy. I hope that you doctors and nurses in all your clinics will look to the diagnosis of mental defectiveness. We believe now that there is some hope of remedying enough to help them enjoy life to some extent and not be such a menace to society. I refer especially to the pituitary and other endocrines. We are considering that especially at our Institution now. I wish that I could show you two little tots that we have there. A year ago they sat around and paid no attention to anything; now they are bright and active. No doubt, it will be necessary for us to feed them the gland until they are physically matured.

We are also doing some experimental work with the thyroid gland.

Dr. A. S. Root, Raleigh: I wish to call attention to one other class of mental defectives, in whom the condition is due to cerebral birth hemorrhage. In a great many of these cases, if the condition is recognized a few days after birth, it can be relieved by drawing the blood from the spinal canal by lumbar puncture. A great many of these children grew up to be mental invalids, spastic paralytics, mentally defective children of all grades. But if, during the first few days of life, before the blood clots on the brain, and provided the lesion is below the tentorium, a lumbar puncture is performed and the blood withdrawn, a great many of these children can be saved as to their mentality. Two of these cases have come within my practice in the past year, and I feel that they would have been mental defectives all their lives if this simple operation had not been performed. I think we ought to educate the profession, and the public too, to recognize this condition early and to realize the possibilities from such treatment.

Dr. L. B. McBrayer, Sanatorium: There is another thing in the way of infections in which I feel these health officers should be very

deeply interested, and that is venereal disease as distributed by wayward girls. We had hoped—this community had hoped, as well as the Moore County Medical Society—to take this Association over to Samarcand Manor for this afternoon, but the Secretary stated that he was paying out the money for a scientific meeting and that he thought that we ought to work. But arrangements will be made to take to Samarcand Manor those who care to go. So I suppose there is nothing left for us to do this afternoon but to obey the mandate of our good Secretary and work.

Dr. Sidbury, closing the discussion: In regard to weaning the baby, the policy is, of course, a disputed question, and each doctor has his own method. My method is to try to wean the baby before summer comes. If the first year terminates in the middle of the summer, then wean the baby at nine or ten months. Every baby should receive a supplementary feeding at seven or eight months. If you put it on this supplementary feeding at six or eight months and begin to give the baby cereals, by the time it is eight or ten months old, it is in position to be weaned and put on a rational formula when the summer comes. If the baby is only seven or eight months old, I believe that it is best to keep it on the breast and give it supplementary foods through the summer. If it does then become necessary to wean the baby during the summer he will have already become accustomed to the foreign food.

As to toxin-antitoxin, the most unfortunate experience was on the Border where a commercial product was used. It was found that there was too much toxin for the antitoxin. The product which has not received any black eye is that produced by the New York City Board of Health. It can be obtained by writing to the New York City Board of Health. I feel that if you use the New York product you are absolutely safe, for when you consider the number of cases that have received it all over the country, with not a single fatality, or untoward happening, we can feel safe. With this product there has not been a bad result since it has been used.

AFTERNOON SESSION

SYMPOSIUM ON EFFECTIVE QUARANTINE WORK

GETTING CASES REPORTED EARLY

P. J. Chester, M. D.,

Health Officer Pitt County, Greenville

Early reporting, early quarantining, and early lifting of quarantine—these three things are the essentials for successful quarantine. To get cases reported early we must make both the doctor and the people realize the importance of reporting, not only as a measure to protect the people in general, but as a bounding duty for the protection to health and lives of the families in the various communities. The earlier the report is received, the earlier they get the literature which gives them the precautions they should take in preventing the spread and the control of the disease, as well as complications that so frequently follow in the paths of contagious diseases, thereby saving lives of many children as well as adult life.

To get early reports, we must keep in touch with the machinery which turns out these reports. The doctor, the parent, the teacher, and the neighbor give us the reports. We must get the reports with as little trouble as possible to everyone, trying to point out not only a reason for, but the advantages to be derived from reporting. Quarantine in the rural communities can be made more effective by co-operation with the people in communities where diseases exist, by acknowledging receipt of report with a personal letter to the person making the report, and as far as it is possible, make a personal visit to the reported case. In this way you show the people that you are interested in them and appreciate their co-operation.

I think the doctor should be encouraged to report by telephone if you have a clerk. It will likely give you complete information and will surely be quicker. Most doctors had rather talk than write. The talking takes longer, but the reporting physician may feel like he is doing less. It will be better still to encourage him to fill out a card also, but avoid double reports. After receiving reports over the telephone from physicians, I would like to suggest getting out a form receipt to return to the doctor. He may wish to keep it for his files. Anyway it will impress him with the fact that the efforts of our department stands for results.

Parents should be encouraged to report early for this reason: take for example, whooping cough; do not wait for the characteristic whoop before making a diagnosis. Waiting for the whoop in whooping cough is like waiting to find tubercular bacilli free in the sputum before making a diagnosis of tuberculosis. Then in a majority of cases it is too late to control contact. Parents should be taught to report every case to spasmodic or paroxysmal cough in a child who has never had whooping cough. In the majority of cases they will be correct.

The teacher, the parent, and the neighbor may be reached through various ways discussed under the educational unit, as follows, press articles, visiting schools, visiting the homes, using forms, asking reports of unreported cases, etc., show you are after each case and they will readily see the importance of the work being done. Make monthly reports through your local newspapers showing the number of contagious diseases reported or quarantined in the county. Compare with same month of preceding year showing comparison. Follow this with an article telling the people how to prevent the various diseases and the management and control as they occur in the family. From the use of the October number of Health Bulletin in the public schools of Pitt County we put over a wonderful educational program and by this method I have been able to impress many people in the rural districts, as well as in the towns, with the great necessity of early reports and quarantine. I can attribute an unlimited amount of good directly to this plan of educational work. These bulletins must be used as a reading lesson by the children. Once you have impressed the children with the source, the danger and the prevention of the disease, you have the backing of the entire family. Again we can make a good impression by assuring the children that they are the boys and girls of today and the men and women of tomorrow. If they are sickly, delicate, and unhealthy boys and girls today, they will be unhealthy and unfit men and women to handle the future problems of our country.

We must be prompt in getting in touch with the case after the report reaches us. This puts contact under control. If we, as health officers, expect promptness, we must give promptness. If we delay, public or moral support will not come up to what we would like to have it. All typhoid and diphtheria cases should be visited as soon as possible.

An important factor in making quarantine effective, is to get reports early, quarantine early and lift the quarantine as soon as it is safe to do so. This will put the children in school soon. Doctors

should be told (on the case form which I spoke of) how to get the quarantine raised early. This will be gratifying to the physician and to the householder. No opportunity should be lost towards teaching parents to report cases not seen by physicians, as there is no better way of determining the success of the quarantine officer in a community. The parent should be taught that all cases should be reported by the family or by the family physician. Our State Epidemiologist, Dr. Mitchener, has recently begun to send out form letters to be returned when friends of our work know of unreported cases. We hope this will help us to further the cause of health work. The Health Officer should visit the doctors on every occasion, thereby assuring him that you are willing and ready and want to co-operate with him. In case the doctor overlooks the reporting of a disease or case in the midst of a big rush it is up to the Health Officer to call him over the telephone or call at his office and inform him of the fact that he has overlooked the reporting of this case. In this way you invite the hearty co-operation of the practicing physician and in every case he will be the most co-operative man in the county and will be invaluble in making this work successful. Quarantine is not complete unless you get your reports early, and vaccinate in cases of typhoid fever and smallpox, or immunize or give toxin-antitoxin in cases of diphtheria.

I am heartily in favor of prosecution in cases of absolute negligence to report contagious diseases. After every community has been shown that it is their duty to report diseases themselves or call in their family physician, which of course, makes him responsible for reporting, they should be prosecuted for failure to report. For example, I have prosecuted within the past year, a number of cases for failure to report and find that it has resulted in an unlimited amount of good in the entire community. You will have a number of cases to come up in your quarantine work, where the family quarantined will remove the placard without authority to do so before the date of release. You will find that a number of these families are ignorant and must be handled very carefully. If I feel that they have not had the opportunity to become enlightened on health work as I think they should, I penalize them by extending the quarantine date, and notifying them of the fact that if this placard is again removed without my authority that they will be prosecuted. This has proven to be very effective. Another method of encouraging early reports is by holding up the sick benefit insurance. This is something that nearly every colored man and woman is carrying and he prizes it very highly. When he or she fails to report a disease this insurance application can not be

signed officially by a physician and, since having a conference with the insurance agent, we have so arranged that all claims paid in cases such as smallpox and other contagious diseases are checked in my office. If a physician signs this he assumes the responsibility thereby subjecting himself to prosecution and if the claim agent pays it without being signed, he assumes responsibility. Of course, as you can readily see, this brings tears to the eyes of the man and woman who holds such insurance. After all it is a matter of education, which takes time and patience.

THE SCHOOL AS ONE MEANS

R. S. Bailey, M. D.

Health Officer Vance County, Henderson

The most abused term in the English language, the most elastic term, the term used to cover more moral obliquity than any word we know of is conscience. Old Julius Cæsar used a certain expression in one of his commentaries. He said, "Homines credunt quid volunt," that is to say, men believe what they wish to believe. Our own experience in dealing with human nature compels us to say that Cæsar was right; they do believe what they wish to believe, and they always fall back upon conscience as an infallible guide. We all know that conscience is a guide directly in proportion to the amount of correct knowledge we attain, and that an uninstructed conscience will lead to all sorts of crime and absurdities. The prompting of an ignorant conscience leads to greater catastrophes than any other brand of ignorance.

The various branches of our present day school curriculum have very little to do with the development of a conscience; their purpose is to develop the intellect. The mind is given certain things to do that by the doing of them it may become strong. No special effort is made either to develop the body or to quicken the conscience in the observance of health laws, hence the whole burden of inculcating the morals of health devolves upon those agencies employed by the State for that purpose.

The most important part of a teacher's training should be hygiene and sanitation, and yet little or no attention is given to this matter by our normal schools, which annually turn out hundreds of teachers who neither have any sanitary conscience themselves nor the wisdom and instruction necessary to develop such a conscience in their pupils. There is nothing we know of that ought to appeal to the conscience

more strongly than the conservation of human life, and yet our common school teachers, with few exceptions, do little or nothing in training the conscience of their pupils unless prompted thereto by such agencies as the Red Cross, the Tuberculosis Association, the State Board of Health or the County Health Department. All the efforts of our normal colleges are directed to training teachers to develop the minds of their pupils, and little or nothing is done in the pedagogy of physical training and sanitation.

Not only should the public school teacher begin a thorough course in physical training, but they ought to be instructed in the recognition of all contagious diseases so that valuable time be not lost before the disease is recognized. For example, we all know that the most infectious stage of measles is the period when catarrhal symptoms become manifest, and what good does it do to send a child home after it has been coughing and sneezing for hours in the school room.

Unless the teacher is drilled in the recognition of contagious diseases; unless she is continually reminded of her own responsibility in safeguarding the health of the children under her care, she will have no sanitary conscience of her own and therefore can not be expected to inculcate a sanitary conscience in the children under her care.

We all know that physical education was given the first place in the schools of the ancients. We also know that the best physically developed people of antiquity were the Greeks, and it is a striking fact that they were also the best mentally developed. After the dark ages and the beginning of the renaissance, the pendulum swung almost entirely towards mental development, and it was taken as a matter of course that the intellectual giant was a physical weakling.

Though little or nothing is done by our normal schools to train our teachers in the conservation of health and the protection against disease, much can be done by the health officer to supply the deficiency in their training.

First we can make it our business to attend all meetings of the county teachers' association, the parent-teachers' association, the mothers' clubs and all other agencies that have any connection with the school. Second we can arrange to meet and have heart to heart talks with the faculty of every school, white and black in the county. Third we can write a brief handbook for the teachers, containing no more than necessary information.

In order to get people to read health literature, it must be simple as possible, void of technical terms and above all things, as brief as possible, people can take this information only in broken doses. They

might take large doses but only a little is absorbed and must be administered at the psychological moment. For instance, if we should find a child with bad teeth, bad eyes or defective hearing, all the information necessary can be printed on a slip of paper 4x5 inches.

When I first started as a health officer, I asked for a full supply of the State literature. The State Supervisor smiled significantly and so did his stenographer. I asked the meaning of the smile and was told that I had made the same useless request that others had made; that I was welcome to a large supply if I wished it, but that the experience of the State Health Department was that people would hardly ever read it. After I had perused some of it myself I soon discovered that this literature attempted to give far more information than was necessary. In other words, it was too volumnious. I therefore discarded it and wrote on little slips hardly larger than a man's hand, a little treatise on some one subject which I wished to call attention to. I sent these to the parents in a sealed envelope. They did not fail to read them, and if they did not acquire a large amount of information they did learn a little well. It is a maxim of the conscientious teacher that "To learn a little bit well is far more important than to get a smattering of a whole lot."

If a handbook on prevention of disease be prepared by the county health officer, his next step is to secure without fail the co-operation of the county superintendent, and exact a promise from him that this booklet be rehearsed at least in part at every meeting of the county association. It is also a good plan to give the teachers a correspondence course, using your own booklet as a text-book and sending out a questionnaire covering an allotted part of the text that has already been assigned.

If we expect to develop a physically strong nation, if we expect our people ever to learn how to prevent disease, we health officers ought to make a concerted effort to have physical training and sanitary instruction made just as compulsory as any other branch of the school course of study. The compulsory physical training was enforced in our army, and we all know what remarkable results it produced The results would be far more remarkable if this same training were started early in life. The child's instinct to play is a striking reminder that nature endows the child with the play instinct in order to develop its body. When we confine children in a school room for hours, compelling them to breathe vitiated atmosphere and then fail to give them compensation by vigorous out-door physical training, we are thwarting nature in her effort to develop a strong, healthy animal.

It would seem that in speaking so much about physical development is sidetracking the matter of quarantine which is the theme for discussion, but it must be remembered that all sympathetic co-operation depends upon the inculcation of a sanitary conscience, and a sanitary conscience is not established by teaching alone. It must spring from habit of thought and habits of action are established mainly by doing things until they become second nature in the lives of the rising generation.

Now a word as to the health officer's particular duties. I have found out by long experience as an educator and physician that the personal equation outweighs all other considerations in getting results. Personal interviews in which earnestness and every charm of personal attraction constitute the most effective weapon of the health officer. It is very wearisome for a man to be continually showing earnestness and enthusiasm. If carried too far it becomes a nerve racking procedure, but all experience of successful men shows that these things count more for success in educational work than the most profound learning and the most consummate skill. The man that is too lazy or indifferent to train himself to be personally attractive, especially to children, is putting his light under a bushel.

The crux of the whole matter so far as the school is concerned, is the teacher. A considerable part of the health officer's time should be devoted to instructing them in the recognition of contagious diseases. I believe they will gladly respond if the health officer shows by his own interest and enthusiasm the importance of this matter.

The teachers are woefully ignorant of such matters, but what can we expect when there is no instructions given them at normal colleges? The teaching of physiology and hygiene in our public schools is done in a perfunctory manner and regarded no more seriously by pupils than history or arithmetic.

Epidemics, especially of children's diseases, are most likely to begin in the school and there is where we should concentrate our efforts.

To summarize, there are comparatively few people in the world who have a sanitary conscience, due to the fact that they are ignorant. The physical and moral education of the rising generation in our public schools is our only hope, for it is a well known fact that "You can't teach an old dog new tricks." The training of the children should consist in the inculcation of correct hygienic habits of thought and action by requiring them to do things. They should be specially trained in their obligation to society.

The health officers should make a concerted effort to have compulsory training in hygiene and sanitation made a part of the school curriculum.

Our normal colleges should train their graduates in hygiene and sanitation, even if something else must be neglected. They should be continually impressed with the fact that they are the builders of character, even more so than the ministers.

As matters are now the health officer should concentrate his efforts upon the teacher, and should devise a course of study whereby they can acquire the desired knowledge that begets a sanitary conscience. He should spare no effort to secure the co-operation of the county superintendent of education.

The most important business of the county health officer is the training of himself in making his personality effective.

In conclusion, let me say that the health officer who engages in the work without a sincere desire to preserve life and spread happiness and sunshine in this vale of tears has missed his calling. Our efforts are directed to the living that they may have life more abundantly.

Eyes that are closed in the slumber of death
  Cannot gaze on the beauty of flowers;
The perfume of roses is lost to the breath
  That was hushed in the twilight hours.

Hands that are rigid can never caress
  The gift or the friend that is giving—
Don't wait till they're gone for your love to profess,
  But show all your love to the living.

There are struggles and striving and sometimes a fight,
  There are cares, there are tears, there is sorrow;
Don't wait till a loved one has gone from your sight,
  All chances have flown on the morrow.

The heart that is stricken with anguish and pain
  The charm of kind greeting will strengthen,
The handclasp of friendship will ever remain
  While the shadows of life slowly lengthen.

The fairest of blooms in this valley of tears,
  Their fragrance, their charm ever living,
Are the deeds that are wrought by a self-sacrifice—
  There's nothing that's sweeter than giving.

The gloom is dispelled by the sunshine of smiles
  From the grief-shaded faces around us;
Our hearts will then beat in a symphony sweet,
  For the rapture of service has found us.

TIME OF QUARANTINE

E. F. Long, M. D.

Health Officer, Raleigh

In offering this paper for your consideration I desire to emphasize the distinction between the "time of quarantine" as contrasted with "the time for quarantine."

I submit that the time of quarantine should be limited to the shortest time after the onset of a contagious disease compatible with a reasonable assurance of non-infectiveness, for the following reasons, viz.:

1. The reluctance of the average householder to report contagious diseases, due largely to inconvenience to the family as a consequence of quarantine.

2. The regrettable custom of delaying reports of contagious diseases until the certainty of diagnosis is established.

3. The established fact that the most contagious period of infectiveness is during the latter days of the incubation period and the initial stages of the infection, diminishing with the subsidence of temperature.

Probably more cases of infections result from contact prior to, than after, definite diagnosis. Notwithstanding this handicap, quarantine at this period materially affects the spread of the malady. The degree of effectiveness of quarantine at any period is in almost direct proportion to the promptness and character of the personal contact of a diplomatic representative of the health department with the family affected, the epidemiological investigation undertaken, and the isolation of contacts during the incubation period.

In addition to isolating known non-immune contacts in affected districts, routine physical inspection of pupils should be systematically done, suspects isolated and re-inspected until diagnosis is established or probability of infection removed.

Few, if any, city or county health departments represented in this association, are sufficiently manned to assure daily inspection of all pupils. To offset this disadvantage, in a measure, the State quarantine regulations authorize and require all principals and teachers in public and private schools to inspect the pupils daily when any contagion exists in their community; to exclude non-immune contacts and suspected pupils and to report suspected cases promptly to the

health department or quarantine officer. The duty of the health officer, or the quarantine officer, to acquaint every teacher in his jurisdiction with the legal requirements and to exact a rigid accounting of the stewardship of her susceptible charges is too patent for argument.

To expedite contagious disease control work in the schools, standard blank forms for comprehensive susceptibility records should be supplied to each teacher at the beginning of the school term. These forms should be filled in duplicate, one copy each for the teacher and quarantine officer. Reference to these records enable both the teacher and quarantine officer to concentrate their activities on the non-immunes. While the average teacher hesitates to accept responsibility for functions other than class room work, the intimate relation of sick absentees to regular attendance and effective class work; the splendid spirit of co-operation of professional teachers in every helpful enterprise and their sympathy for suffering humanity assures intelligent support in this fundamental phase of public health work.

Isolation, or, at least, limited restriction, of non-immune contacts is essential to control of infectious diseases. The case and death incidence arising from infectious diseases is dependent, in a very high degree, on the capacity of the health department to restrict association between non-immune persons exposed to contact infections and those who are not so exposed.

Children are so vibrant with life and so loath to have their liberties restricted that they do not usually complain until the rising temperature, coincident with the onset of infection, becomes sufficiently marked to compel consciousness of dullness, malaise, aching or anorrhexia. Effective contacts are frequently established, even before anxious, expectant parents are able to note the slightest change in the condition of the child. The perversity of the human ego seems to be well exemplified in the conduct of the average adult when first conscious of symptoms of infectious disease. Feeling badly, he is inclined to button-hole friends or passersby to relate his discomfiture; to mingle more freely with other persons than is his habit when well and his mind centered on business affairs. Being thirsty, he frequents fountains and public or private water supplies, using any available drinking vessel. Mucous gathers in his mouth, so he expectorate freely and promiscuously. He is restless and discontented, so he pays an extra visit to the picture shows or any gathering or diversion that offers. In fact the full significance of his actions does not seem to dawn on him until he is incapable of further derelictions, when he

regretfully wends his way homeward to rest and restore his tortured body.

The time of beginning restrictive measures is vastly more important than the date of release. Excluding lingering infections, such as tuberculosis and typhoid fever, the infectiveness of communicable diseases is most marked at the onset, with a distinct, if not well defined, danger period before the initial rise of temperature.

Our attention, and the attention of the public, should be emphatically directed to contact control. Not only are infectious diseases more destructive to life during early childhood, but frequently result in permanent impairment of the organs of special sense, the respiratory system and other organic structures, the effect of which is cumulative, resulting in lowered resistance to succeeding infections, retarded physical and mental development and relatively low standard of efficiency during childhood, adolescence and maturity and limited life prospect.

The records of the Bureau of Vital Statistics reveal an alarming mortality rate among infants and children, due in large part to needless exposure to infectious diseases.

The following suggestions are offered in defense of helpless childhood, whose innocent bodies suffer the consequences of gross negligence and ill advised practices.

1. *Educational.* Intensive, unremitting, applied, intelligently and forcefully presented instruction directed to the kiddies, their parents and the public, frankly and truthfully presenting and portraying the danger of exposing infants and children to infectious diseases. The press, national, State and local authorities; relief, social and philanthropic agencies are supporting and fostering public health activities with gratifying unanimity. The burden of engaging and enforcing responsibility on the individual conscience is dependent on intimate contact of trained public health officials with the individual and the public.

2. *Reporting.* Carefully and forcefully instruct local officials, physicians, school principals and teachers and the public regarding legal and moral requirements for reporting, excluding cases, suspects and contacts, and hold each agency strictly accountable.

3. *Restrictive Measures.* Rigid exclusion from schools and all public assemblages of suspects and non-immune contacts, early diagnosis and quarantine of cases, and prompt release as soon as the infective period declines sufficiently in the average or individual case to assure relative safety.

4. *Immunization.* The uniform administration of prophylactic vaccines of established value.

5. *Applied Epidemiology.* Public attention should be directed to the urgent necessity for providing a sufficient staff of qualified medical assistants and public health nurses to enable local health departments to promptly visit each case reported, to carefully instruct the family and attendants regarding sources and modes of infection and methods of prevention, to conduct rigid epidemiological investigations, isolate or restrict suspects and non-immune contacts and control disposition of dejecta.

6. *Time of Quarantine.* The time of quarantine should include carefully restricted limitation of suspects and non-immune contacts, prompt and rigid quarantine of cases, extending over the shortest well established or probable period of infectivity.

Dr. J. S. Mitchener: It is my desire to thank the three doctors for presenting these papers on subjects of such importance to the work of my Bureau.

We want reports early or late, but preferably early, so that our machinery can render effective services in preventing the spread of communicable diseases.

It is my policy to tell the truth and not inflate what is being done. Last year our Bureau began to check the morbidity reports against the mortality reports for the list of reportable diseases. I am very sorry to state that we found 40% of the deaths reported had not been reported as cases. Some of us are health officers and some of us are physicians, so this will let each see how things stand.

There is one study we have recently made which makes us feel good. It certainly speaks well for the spirit in which the householders accept compulsory reporting of these diseases about which he has not consulted a physician. During January and February, 1921, a total of 8,700 cases were reported to our Bureau. 6,100 of these were measles and whooping cough and of the 6,100, 1,900 were reported by parents. I believe this will compare very favorably with other States.

In regards to the benefits that the teachers can bestow upon us, I am of the opinion if she will but do what the regulations require her to do, much good can be done, and my experience as a county health officer is that they usually co-operate very well indeed. The teacher should notify the quarantine officer on report cards of suspected cases sent home from school or that exists in families which have no children in school, but to have these cards, the health officer

must supply her with them. She should watch carefully the children in her school when such diseases are prevalent in the community and discuss with the children the early signs and symptoms, with the request that they explain these and the responsibility of reporting to their parents.

Dr. Long brought out a very excellent idea when he spoke of the "time of quarantine" and the "time for quarantine." As mentioned above, we are getting reports late and often not getting them at all. The regulation governing the non-immune contact is the same thing as the case itself and by strict supervision of the contact, we can hope to prevent the spread. The child confined to its bed has already done its epidemiological damage.

I am sorry that Dr. Janney is not here to present to us the subject of immunization against these diseases. His paper would have completed the symposium. However, papers read this morning touched upon some phase of this subject. I wish to mention a few words about the typhoid situation in our State. Last year we had 330 deaths or 97 fewer than the year before. This was a remarkable reduction and is going to be a task to keep a low death rate this year, but it can be reduced and our hope for this lies in the fact that the death rate from typhoid fever is higher in that section of our State under the supervision of whole time county and city health officers than it is in the other part of our State, but with the effective work of these men we hope to maintain our excellent record, if not improve it.

I shall be very glad for any one to make any suggestions which will improve the services of my Bureau to the State.

Dr. J. A. Morris, Oxford: Referring to Dr. Bailey's subject, "The School in Effective Quarantine," I find that, from overwork and unwillingness combined, I do not get the co-operation I need. We have distributed the cards gotten up by your Bureau, giving the principal diseases prevalent in schools. We have gone over those cards again and again with the teachers. They are in practically every school-room in the county. Yet in five schools I was called by the parents, asking if they should send their children to school, there being measles and chickenpox in the schools. I have never found measles, but I did find chickenpox. The result was that I thought I ought to break up those schools. We sent home the cases and then took a survey of the school. In one school of ninety pupils I sent home thirty-four. Instead of making an impression and making the teacher feel that she had failed, I got opposition. I think sometimes that we ought to be backed up by authority. I think that the county

board of health and the county board of education should confer together and make compulsory the teaching of sanitation and hygiene. If the teachers are not able to teach it effectively, they should be demoted. I believe that it would have a good effect and that the teachers would learn what they ought to learn, because of the overhanging authority. I really hope that may be one approach, so that we may get quick results. Education is slow. The tuition of this learning is sickness, death and sorrow. People do not want to learn. We need immediate results. However tactful a health officer may be, his influence is not that of authority. If he rises up and revolts against the teachers he will get them all opposed to him in a short while. But if there were some authority making the teacher learn these things, I believe we could get quick results.

Dr. Chester: I especially emphasized in my paper that teachers should be trained in the normal colleges in the recognition of disease, and taught to teach that effectively. These subjects will have to be made compulsory in the school curriculum of our State, and until that is done we shall not have the proper kind of physical education.

Dr. N. B. Adams, Murphy: We are just passing through an epidemic of whooping cough in my county, and I would like to say a few words in regard to what has happened with the pertussis vaccine in my experience over there. Since the first day of January, 1921, I have had twenty-two cases of whooping cough. They were all treated with the pertussis vaccine and fourteen of them had not another spasmodic cough after the third night. The others were benefited Forty-six persons were vaccinated against whooping cough, some of them in the same families where children had it, and not a single one of them developed it. I felt that perhaps my experience there might be of use to somebody, and so I am glad to offer it.

Dr. ——————————: I think the subject of whooping cough is the Pandora's box of all health officers. I get word in some roundabout way that whooping cough is present, and when I go over there I find it epidemic. In nearly every community I find cases which have been taken to a doctor. The average physician will balk at making a diagnosis of whooping cough unless he hears the child whoop. He tells the parents that the child may have whooping cough, or it may not, and the parents want to take it for granted that the children haven't it, and send them back to school. Sometimes the teachers protest. But I am sorry to say that I have not gotten the proper

co-operation from the teachers. Some times the teacher is intimidated, but often they pass this thing up. I believe that if we are to make much progress in the prevention of whooping cough we shall have to use pertussis vaccine. I have come to that conclusion. I do not know how effective it is as a preventive, but I know that some men have gotten good results. I know that the authorities claim that you get good results. I know some physicians who have used it in treatment, and who claim that it makes the disease much milder.

Now, in regard to the reports of typhoid fever from counties where there are whole time men, I believe that the reports from whole time counties are one hundred per cent complete, and in other counties they are not.

Dr. ——————————: In my county we had twenty-five fewer cases in 1920 than in 1919, but we had a much higher death rate. I suggest that Dr. Mitchener call on the practicing physicians.

Dr. Mitchener: I am very sorry that my statement in regard to the fact that there is a higher typhoid death rate in the part of the State which has full time health departments than in the part of the State which has not was misconstrued. The time has been when the difference was even greater than it is today. Because a given county had a high death rate is why the State and county officials chose that county as one in which to develop a full time health organization. My point is that there is yet work to do and we must keep at it.

I might state that we hope to maintain the low death rate established in 1920 for typhoid fever because such a large percentage of our people are under the oversight of a full time health organization. Morbidity reports are much better in counties and cities which have live health organizations, but I am speaking of deaths, and our State as a whole is certainly 90% perfect or we would not be placed in the registration area by the federal government. We are unfortunate in not being able to prevent those cases that die for they are the ones that tell the tale.

Dr. Long: I have been more puzzled as to means of control of whooping cough than any other quarantinable disease, because it is so difficult to diagnose early. The physician is almost helpless to make a diagnosis unless he can get an absolutely true and comprehensive statement from the parents. But we have a saving phrase in the regulations, which say "whooping cough or any spasmodic cough."

I want to call your attention again to one item in the paper which I submitted, "applied epidemiology." It is true that we get results—a reasonable degree of results—by instructing our teachers, getting at them through their monthly meetings and reaching them by correspondence, but we do not get the enthusiasm that we need. And until the county health departments are sufficiently manned to get into touch with the teachers in their schools during epidemics, give the necessary instructions there, let the pupils carry them home to each family, and require that every suspected case, and every non-immune person who has been in contact with a case or a suspected case, be kept from school until a diagnosis is made, we cannot control whooping cough or any other contagious disease in an effective manner. The solution, in my opinion, is a sufficient corps of public health nurses to enable health departments to make vital contacts in schools at the psychological moment.

Dr. W. S. Rankin: I want to say just a word in regard to the pertussis vaccine. I was particularly interested in what Dr. Adams said about his experience in Cherokee County. I have been hoping ever since this was developed that it would be an effective means to control whooping cough. My understanding is that in New York City, where they have been doing a good deal of work with this vaccine, they find the preventive power to be very marked, enough to justify public use, when the vaccine is very fresh—that is, not over a week old. I do not know that I can say anything about the curative power of pertussis vaccine, but the preventive value is very marked when it is fresh. Of course, if it should turn out to be the case that pertussis vaccine is reliable for preventive measures when it is fresh, it would place upon laboratories some little inconvenience in keeping the supply fresh all the time, but if it proves to be true that fresh pertussis vaccine will prevent whooping cough, then we have some means for dealing with this disease.

Now, as to whooping cough and measles, there are two things which we want to get across: First, that these diseases are practically impossible of prevention. Sooner or later people exposed to measles and whooping cough will have them. But the point that we can drive home is that there is a right time and a wrong time to have them. The mortality of whooping cough in children under one year of age is about twenty-five per cent. Between the first and the second years of age it is about seventeen or eighteen per cent, and after five years of age, one per cent. If we can get that thing across, and get the people who have infants to take special pains to protect them, I think

we have won a very important point in combatting these diseases. While these diseases are doubtful of prevention in any large way, there is a right time and a wrong time to have them. The wrong time is under one or two years of age, and the right time after children are five years of age.

Dr. Adams: I want to say that I believe in the pertussis vaccine. I got mine from New Orleans. It is manufactured after I wire for it, and I get it in four days. This vaccine that I have used there has done just what I stated a while ago. Out of twenty-two children who were given it, fourteen never had a single spasmodic attack after the third night. Out of forty-six persons vaccinated against whooping cough with this vaccine, some of them inmates of the same home with children whom I treated for the disease, none took it. Not a single one took it who had the vaccine. I believe that if you get fresh vaccine and the vaccine is what it should be, you have the control of whooping cough.

Dr. Rankin: I want Dr. Adams to thoroughly understand that I spoke in appreciation of his contribution to this discussion. I did not want to raise any question as to the accuracy of his observation. The only point I want to make is in reference to the experience in New York, which is reconciled with his own.

Dr. Wm. M. Jones, Greensboro: I have had some experience with pertussis vaccine in something like two hundred cases. At times I have thought that the results were excellent, and again I have not been able to see that I got any effect at all, and I have not been able to explain why. Probably the statement made by Dr. Rankin in regard to the freshness of the vaccine explains it. I have had a number of physicians ask me what I thought about the use of this vaccine. I have always advised that I believe that it is worth using, and have made a statement of what I have seen as a means of prevention and the result and also what I have not seen. It is probably explained in that the early or fresh vaccine is effective, whereas that which is a little old has not been effective.

As to the two diseases, whooping cough and measles, I have listened with a great deal of interest to the discussion. I would rather have anything else reported than a case of whooping cough. I do not have any trouble getting typhoid fever reported or smallpox (except in the way of black measles in negroes) and scarlet fever and diphtheria, but in a rural section, if a physician makes a report of whooping

cough, other children get it and do not call a physician, and pretty soon there is an epidemic. These two diseases, whooping cough and measles, give me more trouble than all the others put together.

Dr. A. S. Root, Raleigh: Most of us who have had experience in giving pertussis vaccine have had the same result that Dr. Jones reported. Sometimes it is effective, sometimes not. The vaccine must be fresh, and it should be given in larger doses than it is ordinarily. I have been greatly interested in the different reports of series of cases in various medical magazine. Some report five hundred or six hundred cases with excellent results, and some that number with poor results. The failures, I think, are in part due to not using fresh vaccine, but I think also that there are several strains of the organism, and unless the particular vaccine is made from the strain of the organism causing the disease it will not be effective. If it is effective it will clear up the disease in a remarkably short time. In every early case and in every case exposed to the disease in an infant under three years of age the vaccine should be given. After the paroxysmal cough has begun I have never seen the slightest benefit.

Dr. Long: I want to offer a suggestion on the care of vaccines. Immediately upon receipt they should be placed in a refrigerator that refrigerates. For carrying the vaccine to dispensaries and families use a vacuum bottle. Roll the ampules in a little cotton and pack them snugly. Then whatever is left can be returned with practically no deterioration.

Dr. L. B. McBrayer, Sanatorium: There is one point to which I think attention should be called, and that is the length of quarantine and also what quarantine is for.

Quarantine, as I understand it, is a public health measure to prevent the dissemination of diseases from sick people to other people, and the very moment that the disease ceases to be infectious the quarantine should be raised. The time was, as a great many of us will remember, when we quarantined diphtheria for a certain length of time. That is because we did not know any better. Now, just as soon as we find out from a culture that the Lœffler baccillus is no longer in the throat, we release the patient, whether it is a few days or longer. That is the only way to regulate quarantine.

Now, if I understood correctly, they propose to use quarantine as a punitive measure, to penalize the parents and physicians if they do not report the disease at the proper time. I do not believe that

that is a proper measure or that it would stand in the courts. I hope, for the sake of the health officer, that it will never get into the courts.

Dr. Chester: Dr. McBrayer misunderstood my meaning. It is only after the card has been removed without authority that the quarantine is lengthened.

Dr. J. E. Malone, Louisburg: I want to ask a question: What is a carrier, and what are you going to do with carrier?

I have a carrier of diphtheria in my town, and I want to know what to do with him. I had a case of diphtheria to break out yesterday in that same family. I have tried to isolate her as much as I can. I keep her from school. Dr. West, of Raleigh, treated her. When I took hold of the case the mother told me that she had seen Dr. West recently and had a letter stating that she had a disease of the throat, diphtheria, but no one could catch it. But when I wrote Dr. West, he said that she is a carrier of diphtheria. The only thing I could do was to keep her from school, but daily I see her playing on the street with other children. I have remonstrated with her again, but you know it makes them mighty mad.

As to whooping cough and measles, I am a veteran in health work, and I feel like Bishop Brooks of Norfolk, "There is more christianity in patience and toleration of other people's ignorance than in all the creeds and dogmas." So I started out to be patient and I was patient for a long time. But last week I turned loose and made the fur fly. I made thirty-four indictments in one week. I think I accomplished a good deal by the gentle art of persuasion, but now I think we should call in the law.

RURAL TUBERCULOSIS CLINICS OF NORTH CAROLINA

Jos. L. Spruill, M. D., Sanatorium

The tuberculosis clinics of North Carolina financed by the North Carolina Tuberculosis Association, The American Red Cross, The State Board of Health and local agencies are doing as much real tangible work in the fight against tuberculosis in the State as any other organization in existence.

The clinics are conducted in co-operation with a whole time health department, a whole time health officer or a County Public Health Nurse; and where none of these exist, in co-operation with the physicians or welfare workers.

Dr. Armstrong has rightly said, "The next step in the fight against tuberculosis is the finding of the cases," hence the establishment of clinics.

The most successful clinics are those held in the counties which have a well organized board of health with a whole time health officer and public health nurse. They of course have a record of all the cases of tuberculosis in their counties, and in preparing for the clinic, visit all these people and select from them all doubtful cases, and others that have been exposed to infection, together with any others who may have reason to suppose they may have the disease, and give them dates to attend the clinic.

The Public Health Nurse is in most instances by far the most patent factor in the work. She it is who most frequently finds the new cases, calls the attention of the local physician and has them ready for the clinic when it is established.

There are twenty-eight of these nurses in our State in as many counties and their value to the cause cannot be estimated. Without exception, they have the respect and confidence of the physicians as well as of the best people in the counties where they work.

They go through these counties and select those cases whom they have reason to believe have tuberculosis, or have been exposed. In other words, "they find the cases." They then give them dates and hours to report for examination and see that they are present at the appointed time. As an example of their influence and efficiency, I will cite one instance where I examined ninety patients for one of our nurses who had gone among her people and given each one a day and hour to report at the county town for examination; I examined 96 cases for her, and of all those, one patient alone failed to meet his engagement on time.

The work is stimulating an interest among the physicians all over the State, and I have yet to go into a county where they have not given me their heartiest support. In several of the counties the clinics have resolved themselves into consultations, the physicians themselves bringing their doubtful cases and going over them with the examining physician. By their co-operation as well as the care exercised by the nurses along the same line, many cases of tuberculosis are diagnosed that would otherwise escape notice.

The Assistant State Director of Public Health Nurses or one of her assistants, usually accompanies the examiner in all his clinic work, and while the local public health nurse supervises the patients when they come, she takes their histories and assists the examiner in his work. With her assistance we are able to make the usual careful

examination in about half an hour. So much for the details of the work. As to results.

I have already shown the results with the physicians, how they are eagerly embracing the opportunity of having their doubtful cases examined, but the most far reaching result is among the people themselves. The examination per se, is only a part of our work. We get the people together in the churches, courthouses, school houses and any other places, wherever we can get an audience and talk to them about themselves. Tell them of the ravages of tuberculosis in our nation, State, and particularly in the county where we are working.

We tell them the number of reported cases in their county and the number of deaths there last year; and argue to them that no one need die of tuberculosis if he only has a chance to live; and then explain to them the county and State Sanatorium plan of treatment, together with an explanation of the special act of our State Legislature providing for the building and maintenance of a tuberculosis hospital in each county in the State. As a result of these talks three counties in the last year have taken steps toward the building of these hospitals; one at a cost of $150,000.00, one at $100,000.00, and one a smaller hospital which is now open and doing fine work.

In addition to this, one of the mountain hospitals has turned its infectious disease ward into a tuberculosis ward and is treating tuberculosis patients as a result of a clinic held in the hospital. The number of patients coming to these clinics for examination is always far in excess of those whom we have time to examine, and we frequently have to return to the same county to finish the work. People are waking up to the importance of early diagnosis and treatment; and this naturally causes them to ask why the counties and State have not provided more adequate facilities for treatment; and out of this question has grown the tuberculosis hospitals now on the way to construction.

There is still another phase of the Director of Clinics' work. For a number of years the Medical Staff of the North Carolina Sanatorium have used artificial pneumothorax in the treatment of all cases of tuberculosis which were suitable for its use. Many patients have been greatly benefited by it, but we have found that very few could remain at the Sanatorium long enough for successful treatment requiring, as it does, from one to three years or more to get permanent results. It therefore became necessary for this treatment to be continued after the patient left the Sanatorium.

On investigation we found that there were few physicians in the State, outside of Asheville and vicinity, who had taken the trouble

to make themselves familiar with, and efficient in the use of this treatment. So the Director of Clinics goes to the physician of the discharged patient needing this treatment, teaches him how to give it, and offers to refer other patients within a reasonable distance to him for the treatment.

To sum up briefly we endeavor to have our clinics accomplish:

1st—Finding the cases and finding them early while they can be cured.

2nd—Endeavoring to interest the authorities and people generally in making it possible for these patients to receive proper treatment:

(a)—By enlarging the State Sanatorium.

(b)—By building Sanatorium for the Negroes.

3rd—By building county sanatorium.

(a)—By counties organizing health departments with whole time employees.

(b)—Smaller counties employing public health nurses.

(c)—Establishing permanent clinics as has been done in Winston.

(d)—State wide clinics as per the subject of this paper.

Statistical Report:

Since the establishing of these clinics eighteen months ago, the following work has been done:

Number Clinics Held	22
" Patients Examined	1,911
" Positive Cases Found	507
" Addresses Given	74
" People Present at Addresses	12,980

Dr. Malone: Tuberculosis is one disease in which I am very much interested, and have been for a long time, and I am very happy to say that it has been greatly reduced in my county, I hope by my efforts. Some years ago I started a campaign, initiated by myself, to try to reduce it and eliminate it from my county. The most difficult part of the work is to get hold of the cases of tuberculosis. They are modest and timid. When a person is suffering with tuberculosis or a suspicion of it, it is a hard matter to get it reported. Whether they think it is a shame to have the disease or not, I do not know, but I find it is harder to get people to report that disease than any other.

I went over my county, and, after giving all the instruction I could, in the course of time I got eighty-six cases. I sent the list to

Dr. McBrayer, and soon after a history of each case. I called my physicians together a few days ago and asked them how many patients they had with the disease, and I counted up only eleven. So I am very much gratified at the reduction, and I am more gratified that we shall soon have unlimited homes for these poor unfortunates. The greatest trouble I have had is to find a place for them, because of overcrowding at the Sanatorium. I hope that soon I shall be able to eliminate it from my county, and turn them over to Dr. McBrayer, who certainly does them good.

Getting them reported and getting hold of them is most difficult. But now I am working through the school teachers and I think it is the best way I can devise. I have them interested and am furnishing them literature. I think the teacher is a mighty factor among our people today in the work of advancing public health. I believe the teachers will aid me in getting every case of tuberculosis in my county and in turning them over to Dr. McBrayer to have them cured.

Dr. A. H. Lindorme, Wilkesboro: Just prior to coming into health work in North Carolina, I was with the U. S. P. H. S. and assigned to the Federal Board of Vocational Education for ex-soldiers.

I traveled the State of North Carolina from Raleigh to Wilmington, and I was surprised to find so many men who had symptoms of tuberculosis. Some of these men dated their troubles from an attack of "Flu," and others from being "gassed" in the army.

I think, as a class, it is well not to overlook the ex-soldier when we are fighting the spread of tuberculosis.

Dr. Spruill, closing the discussion: I have not anything to say in closing except this: Dr. Mitchener jumped on the health officers about various things. I want to say this much to Dr. Rankin. You have a corking good bunch under you—at least those with whom I have come in contact—able fellows, and the jolliest lot I have ever met. I also want to thank the physicians for their aid in the work which I have been trying to put over. I have never failed to get their co-operation, socially and professionally. I want to offer my most heartfelt thanks. We can not get along without the practitioner. If we have had any success, a great deal of it is due to the general practitioner and to the public health nurse. In the whole time health officer counties the success is due largely to their untiring efforts.

SYMPOSIUM ON GENERAL PUBLIC HEALTH NURSING
THE SCHOOL NURSE—DUTIES AND METHODS

Miss Percye Powers, R. N., Winston-Salem

School nursing is the natural outgrowth of Medical inspection of children which resulted in the exclusion from school of many children with minor contagious diseases. Very soon it became apparent that medical inspection must be carried further than the detection and exclusion of children suffering from contagious diseases or physical defects. School authorities and physicians began to cast about for a solution of the problem and following the habit so well established in the home and in the care of private patients the nurse became a necessary and successful complement to the school physician. Medical inspection sends the child home with a notice, and "Call your family physician." In most cases a family physician is not called in, because to use the words of Artemus Ward, "There ain't none." The child is kept out indefinitely without effective treatment, to mingle on the streets with other children after school hours and beyond the control of school authorities, a condition placing a costly tax on class work and attendance and offering a premium on truancy —natural evil tendencies which upon the slightest provocation grow with the proverbial rapidity of Jack's Bean Stalk. The wisdom of the eminent psychologist and teacher, who warns "never command a child to do what he cannot do," was here quickly manifest. To do without professional aid what medical inspection directed and suggested, was an utter impossibility to the child. Not only from the home of poverty, superstition and ignorance, but as frequently from the home of the better class, careless, busy or unconsciously indifferent—hence the employment of a corps of nurses to carry out and supplement the work done inside the schools.

The duties and functions of the school nurse are many. She assists in the prevention of contagion, in the correction of physical defects, and is responsible for the education of children and oft times their parents, in the principals of personal and public hygiene.

In making preliminary inspections, the nurse visits each class room and before inspection begins; short, simple directions should be given so that each pupil will know what is expected of him. The nurse then stands with her back to a window and has the children in room file past her, each child holding out his hands with palm and wrist exposed. He then opens mouth wide and is instructed to say Ah! Ah!

which gives a fair view of throat and teeth, then with fingers of one hand he pulls down eyelids in such a way as to expose conjunctiva. In this manner the eyes, throat, teeth, skin and hair of each pupil are examined and the general condition as regards cleanliness, nutrition, etc., noted. The pupils demanding immediate attention may thus be easily selected.

It cannot be too often repeated that the examination of pupils for contagious diseases is a relatively unimportant part of health supervision of schools. Statistics show that as a rule not more than 4% of the pupils of a school system need to be excluded in one year, whereas on the other hand 60% of the pupils suffer from non-contagious defects which need correction. Notwithstanding this relative importance shown by figures, carelessness in this direction may easily bring into confusion the whole school organization to say nothing of numerous homes. With the advent of scarlet fever, diphtheria, meningitis or the more frequent measles, whooping cough, etc., a constant and careful watching of the pupils will avoid an epidemic. Children with scabies, impetigo and pediculosis are excluded but if treated by the nurse at the school or by the parents after her instructions, exclusions are usually reduced to 10 or even 5 per cent of the number previously necessary.

The postal card notification is a poor educational device. Parents notified of physical defects are advised to have corrections made. If at the end of a reasonable time, the child is not placed under treatment, the nurse goes into the home and by tactful presentation of the child's case, effects what practically no other agency can accomplish. It may require frequent and repeated visits and much moral suasion to induce parents to take the proper steps toward medical care. Many parents do not see the necessity of correcting defects that to them seem minor but which the nurse knows may be a handicap to the child through life. In such cases the nurse must be kind and sympathetic having due respect for the superstitions of some, and the traditions of others, but at all times the nurse must be firmly shaping these whims, into stepping stones toward her desired goal—the proper care of the child. We often hear how well a nurse controls or manages her patients, how easily she seems to bring them to her plans (or will). This is based almost entirely upon her ability to understand his point of view. The school nurse must understand the child's point of view, the parent's point of view, and then from *this angle only* may she hope to bring them to an understanding of her vision (for the child). A *common* point of view *must* be reached else failure in the particular case at hand is liable, and worse still, any hope for future co-opera-

tion in the family is given a severe blow. The financial situation is often the real reason for failure to secure proper care for children even when specific defects and their results are pointed out to intelligent parents, but this obstacle may be removed by the nurse without any offense to family pride if the nurse is wise in her treatment of the subject. Fears must be allayed, but at the same time parents must be brought to realize how important it is for the child to be given an equal chance with the well child to develop into a leader of his grade, and eventually into a good citizen.

If a mother be unable to take a child for treatment, either because she is a wage earner, or because of home duties, or if as is often the case, she is timid about approaching a specialist or in making hospital arrangements, the nurse accompanies the child.

We might continue indefinitely a list of such duties and occasions, in which a school nurse may be the means of righting defects and yet there would be in your minds instances and ideas which would apply to your own particular school and community.

In every contact with her people, for soon they become her people, the nurse should be able to keep in mind the future of her work. The righting of individual defects through constantly appealing, is only a part of the great principle of school nursing. The greater outlook, that which has been given to this branch of nursing service an individuality, is teaching.

The nurse who visits a home to advise medical care for a child is falling short of her highest possibilities if she confines her attention entirely to that child. Often there is a baby in the home and every mother is made happy by some little attention shown to this, the most important member of the family. The nurse without seeming inquisitive, can learn about the baby's health, its food how it is dressed, and if these conditions are not favorable to the child's development, the mother may be given various suggestions or may be directed to the Infant Welfare Station or whatever organization the city or county affords for better and healthier babies. Thus the mother is taught to a varying degree of success, but in the *schools* is the greatest opportunity for the nurse. This is her realm. Teach these children not alone to relieve the day's needs, but so that they may be permeated with sane principals of personal and community hygiene, and live them.

Attend the emergency case, dress minor wounds, burns, etc., so that the child may learn anew the old adage, "An ounce of prevention is worth a pound of cure." But above all teach the child that phy-

sical and mental development follow definite principles of intelligent thinking and living.

In case the school is not large enough for a nutrition expert, this may come into the work of the school nurse and nowhere can there be found a more interesting or a more needed line of study than this. Make schedules of weight, urge right and nutritious diet. It is an easy matter to get the child interested in being a normal child. Teach the child that he can think more quickly, accomplish more, play better ball, be a better man, provided he will feed himself intelligently. The recent "Drink More Milk" campaigns are so well known in methods and results that I need not here urge that this is the simplest and most accessible form of nourishment.

These experiments show that children if brought to think in terms of need and nutrition will deny appetite more readily than adults.

Again I say the school nurse has the opportunity to teach the child to think and understand from childhood that his body is his—to make or wreck, according to the intelligence with which he uses or abuses it.

Did I say that here was the nurse's realm? Yes—but no one lives to himself if he wishes to accomplish things. So in order that the nurse may succeed she must early learn that co-operation is and must be her keynote in all successful public health work.

The co-operation of medical inspector, principal, teacher, parents and nurses more than doubles the efficiency of health work. To be sure of this the nurse must be patient, must possess a broad mental view, must be slow to take offense.

Much of her success or failure will depend on her ability to fit her work into the daily program of the schools, without disturbance or interruption of classes.

There is probably no other branch of nursing in which personality counts for so much, as in this work.

She should possess good sound sense and judgment, quick perception, a faculty for keen observation and quick decision, good memory, cheerful disposition and imagination and vision which will enable her to look beyond the confines of the present and see the results of her work in future generations.

REACHING THE COUNTY SCHOOL POPULATION

Alice T. Bassett

County Public Health Nurse, Catawba County

I do not know just how to begin, because I do not think that there is any set way to reach the rural population, for every superintendent, every teacher and every mother is a law unto themselves. But I can reach the little folks and through them the big folks. My never failing rule is to laugh with the kiddies and if that should fail and they will not do as I wish, I laugh at them and you can just guess they hate that and come to terms. Some folks think that I over do school work to the neglect of the other branches; maybe I do, but it is not that I love the babies or the mothers less, but because I know that when I go to see the mother about her child from school I am doing the thing they are used to having done, for the teacher has many times done the same thing and people do not like drastic and new experiences. Also during the visit I am sure to hear of babies and expectant mothers who need care; in fact, more than half of the babies and prenatal visits I make are found in this way, for I never call on any family without telling the scope of my work. When I get into the home, if tonsils are not the accepted subject of conversation I talk of babies, cats, chickens, etc., until I get the friendship of the family and then it is easy sailing. I have visited over a thousand homes this winter and in only two have I failed to be asked back and made welcome, but even in these two I have not failed, for I cannot afford to fail, as they need me badly and I will try again.

When I came to the county in which I am at present, I found the school people particularly interested. I have been able to meet the teachers in their reading circles, where I talked of my hopes and plans, suggested lines of health work for the school and brought defective and well children and talked of the difference and the remedy. Also I am to teach one hour a day during the summer school session, which means much good work started for next year as our teachers are in many instances young and inexperienced, but ready and willing to learn. An other avenue of approach is the Health Crusade. We have 2,250 children enrolled in the county schools this year and it is most gratifying to watch the general improvement in the appearance of the children. Also when Willie falls down on his chores, the visit which helps to urge him on also opens up other needs in the family to me. I had a child with very bad tonsils and in going

to the home to see the mother, I was greeted with the welcome "that you need not come here talking tonsils to me for they are not going to come out," and she dissolved into tears. I laughed and said, "Let's talk about something to eat," for the child was badly in need of proper food. So we did and it ended in me being asked to dinner and the tonsils are out.

Again I had a boy twelve years of age who had been deaf for five years and was still in the second grade. I went to the family, only seeing the mother; there was a family of only eighteen children and were poor. I saw it was practically out of the question for them to pay for their removal. So I went away pretty blue to try to get the money to have it done. The next day the father came to see me and said to take the boy and he would raise the money. Friday he met me with the boy and the money and I took him and three others to have their tonsils and adenoids removed. On Sunday during prayers the lad jumped up and said, "Daddy I can hear you pray." They tell me that they wept and had a real Thanksgiving service.

So it has been through my entire county, there is no theory, there is no system, because everybody is different and must be handled differently. There is only one set rule to it and that is the love of little children.

My school houses are heart breaking; they are dun colored and smoke stained and the window-panes gone (for which I praise the Lord). I was sorely distressed and yet saw no way to brighten them up. But one day we had a speaker begging for a mountain school and she had all the ladies weeping over the poor little mountain children who walked down the long mountain trails to a new fine high school. I wept too, but for my little folks of the red clay roads who walked long ways, not shaded like the mountain trails, to drab, ugly schools. I then racked my brain and decided to brighten them up, and, as necessity is the mother of invention, I dug down into a closet where there were some old Red Cross posters and I took them to the schools and bought all the old Coco Cola and cigarette signs with nice bright, clean Red Cross posters and it would do your heart good to see these bright posters in the schoolrooms. In giving the posters, I told them stories of the Red Cross and Health. When these posters gave out I asked for more and then resorted to Fair posters of good bright hues. The benches are all of the same size; the little folks are too short and the big folks are too long. I put pieces of wood under the little folks feet, but was helpless to help the big boys and girls, only to ask the teacher to give them a chance to stretch once in a while.

One more little trick I have is story telling. I tell health stories and some time play them with the children. I have one, The Sign Posts, which I got from the Massachusetts State Bulletin, which they like particularly well.

After all, reaching the rural school population is simply reaching the little folks.

GETTING COUNTY AUTHORITIES INTERESTED

Mrs. Mildred Hargrave, R. N., Asheboro

I have been in Randolph County about two years. I think that I was one of the first public health nurses in North Carolina. I went there in 1919, and the corporations of the county taxed themselves 1¼ cents a spindle for my appropriation. I went through that year and worked, and I believe last year I told you about it. Then the corporations went before the commissioners and asked them to give one-half the salary, and so they did.

In a small town called Coleridge, there was a family with eleven children. We were called there by a message saying that they were poisoned. The health officer and I went there and found that they had influenza. Within a few days the whole town had it, one hundred and seventy-five people. So I went and stayed there and worked with the few people who were up and with some children. That was one thing which I did to interest them.

The best work that I feel that I have done has been in the schools. I go to every school, and stay in a district a week. I go from home to home. I examine the children and talk to them in the morning about their health. In the afternoon I talk to the parents about their children, or to the girls about how to dress, or to the boys about exercise. At night I talk to the mothers and tell them about the children and about the mysteries of life, so that they will be informed and so that the children will not be afraid to come to them. Sometimes I give a lecture to the girls over fourteen.

Sometimes I go to a home where there is a girl who has fallen, and I get her into the Crittenton Home. I hunt up the ex-soldiers, and help them to get back into a hospital, if they need it.

About two months ago we changed and put in a new administration in Randolph County, and the appropriation has been cut. The Board of Commissioners tell me that there is no money and that they are falling behind. I am the only worker in the entire county at the present time. I feel this way about it. I have worked for two years

in Randolph County, and I love it second to Union, which is my own county. But I do not see how one woman can go over the entire county and do it right. Either we have to specialize and take one work and do it over the whole county, or take one district and do it well. If the work is going to depend upon politics or upon money, I think you men had better get busy and see to it, because almost always the new ones are of a different party and they think that the nurse must be on the other side. I want you men to see if a nurse cannot be put in to take care of your children and take the matter out of politics. If a little child dies or is defective and is not well educated it shakes the foundations of North Carolina. One thing which I think should be done is to put three nurses in each county. I think that the State ought to pay part of the expense. I do not think that private individuals or corporations should pay any. I do not think the school board should pay it. They have enough to do. But it ought to be done.

REACHING THE ADULT COUNTRY PEOPLE

Miss Lula B. Saucer, R. N., Weldon

I have not a paper, but I have some notes. I had some notes prepared that I thought I would give you, but I think the other speakers have touched on what I was going to say.

I wish that my subject had been, "Reaching the People." It is really one and the same thing as reaching the adult country people. We reach the adults through the children and through every imaginable channel. My county is Halifax, and our country people center about the little towns, so we scarcely know what country people are.

The nurse's line of work is entirely different from that of the health officer, for she is working in an entirely different way. She is not an officer, yet their work dovetails and interwinds in such a way that it is sometimes difficult to know where the one begins and the other ends.

In order to interest the people in a community, we must first be interested ourselves. We must love people and we must love to serve people. I think that that is the life of every nurse and doctor or they would not be following those professions. We must help people to learn the difference between helping themselves—the betterment of their own selves and their families— and the betterment of their community. We must teach them that. Then we must teach them the value of co-operation and mutual understanding. After all, what is there greater in life than making people feel the need of each other?

After you have made them feel this need, after you have helped them to feel this need of helping each other and needing each other, you should watch them work. You must care for the people in the way in which they care for each other. You must be one of them, enter into their pleasures, their trials, and their sorrows. Go into their homes. Accept from them what they have to offer, as well as give what you have to give. I find that unless you are one of the people there is a little aloofness. It does not make any difference what station in life they hold, unless you can sympathize with them, and be one of them, you cannot get as close to them and you cannot reach them in just the way you want to reach them. I find, too, that getting on the inside and working out is a better plan.

Our county is a large one, sixty-five miles long, and thirty-five miles wide in the wider places. We have about six hundred and eighty square miles to cover. There are about 43,000 people, about half of them colored. There are many small towns scattered all over the county, thus making it possible for the country people to gather into these little centers, and they do this. Some of our most influential workers in these little towns are the adult country people. We have several interesting Red Cross Chapters. There are six in the county, dotted around so as to nearly cover the county, and they have sub-chapters to co-operate with them. The people already know what it is to work together. These six chapters, together with the county commissioners, pay the nurse's salary and for the car and the upkeep. The Red Cross Chapters pay the salary, and the county commissioners pay for the upkeep. We find it very convenient to work through these centers, and therefore our work has been centered around the towns.

To begin with, we organize classes or clubs in the six centers where the Red Cross Chapters are. These clubs we call Red Cross Home Nursing Clubs, and they are almost everything else. One town started with eighteen members, and now every family in that town is represented in that club. The members kept getting out and bringing in others until every family is represented. We teach home hygiene, the care of the sick, dietetics, the chemistry of food, the proper preparation of food and of meals, etc. A certain day is baby day, on which every member of the class goes out into the surrounding country and gathers in every mother with a baby. On that day the babies are weighed and measured and examined for defects. The mothers are told about them. We lay special stress on some of the things you talked about this morning, the diet, pacifiers, etc.

Another club, after their class had finished, wanted to go on with the work. They had become so interested that they wanted to carry it on, so we got the funds together and have everything ready to start a clinic and health center in that town. The members of this class will conduct a health center, the ladies taking turns in spending afternoons and evenings at the center.

Then another town that had a Red Cross Chapter that had gone to pieces asked if they would work along with us just as if they had one, and they are doing just as much work. Some other things we do are with the soldiers, in helping to get them back into hospitals and helping them with their compensation. In some districts we find it very hard to reach the people, especially with literature, because of illiteracy, so we started some night schools. Then we had in the schools malnutrition clinics. In the fall we offered a prize of a loving cup to the school that gained the most of their underweight during the school year. Very few took part. It had not been arranged in the curriculum for the school year, and it was hard to get it started, but the few schools that have taken part are very much interested. The first few months they gained forty per cent of their underweight. The other schools will probably take it up next year, because they are interested now.

When weighing the children we usually glance down through the schoolroom to see if the children's seats anywhere near fit them. Sometimes the teacher can change them around and help them, and in some of the schools they have put in some little stools. These things can be supplied.

Along with our nutrition work, an ex-soldier had nothing else to do and he started a dairy. He had never heard of certified cows, but I gave him some literature that I had, and now he has all of his cows certified and is selling certified milk. This lack of milk is a very serious problem.

We had one community fair last year in which we gave prizes. The tuberculosis work is a nice work, and one in which we really reach the people. It is very satisfying. I think the prenatal work is perhaps the most satisfying, if there is such a thing as one part of the work being more enjoyable than the rest. The mothers appreciate one little word of help so much. The mothers who get letters from the State Board of Health value them almost beyond anything.

Another factor in the county that helps us in securing the co-operation of the adult population is the midwife. You would be surprised how the midwives bring us in touch with the adult population, but they do. I think we have met them four or five times, and we shall

probably meet them every two months. They are just as interested as they can be. They bring their reports, discuss anything unusual, and we teach them cleanliness, etc.

If I were going to tell you what would help you to receive the co-operation or help you to reach your adult people, it would be to let them help you. Give them something to do. The people in North Carolina, I believe, are hungry to work. They want to do something. Mrs. Hargrave said that she does not believe in collecting any funds from the people, but I believe that that would be depriving the people of one of their great pleasures, for I think every one believes that it is more blessed to give than to receive.

THE MODERN HEALTH CRUSADE

Mrs. Dorothy Hayden, R. N.

Greensboro

The Modern Health Crusade is a health movement to teach children between the ages of six and sixteen, health habits with the minimum of expenditure of time and money.

Each child is given a chore folder with spaces ruled at the right, and for each chore performed an "x" is placed in the space designating the week and the day.

If 52 health chores are made each week for the first two weeks, the child is given the honor of "page."

If 52 health chores are made each week for five consecutive weeks, a button is awarded and the honor is "squire."*

If this same record is made for ten weeks, the crusader is made a "Knight."**

Last year in North Carolina there were 52,000 crusaders in the schools enrolled for the white children and 12,700 in the colored schools.

The modern health crusade is an organized movement that has enlisted more than three million American children.

It is a system of health education that grips the child's interest until health practices become a habit.

Through the children it is educating parents and promoting community health.

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*Squire—Button is round, has a blue field, the lettering white.

**Knight—The button is oblong, red field and white letters.

The Greek Ideal of a "Sound Mind in a Sound Body" made their civilization the greatest of all time. But for the fact they neglected the third pillar of the triangle, they might have continued their power to this day. The third pillar is religion, morality. There are three great divisions in education, each of equal importance.

The individual, community or nation that neglects one, no matter which, long enough, is doomed to utter failure or ruin.

(1) First the development of a sound body.
(2) Mental, a cultured mind.
(3) Moral and spiritual training.

The pillars of this triangle you and I are interested in are the first, the second, and the third, but the one we are privileged to discuss today, is the first, "the development of a sound body," beginning with the child of school age.

The Junior Red Cross was the medium by which the modern health crusade was introduced into the schools, but that has now been taken over by the Anti-Tuberculosis Association. In Guilford County, my county, the enrollment of children in the health crusade is a Junior Red Cross activity financed by the Red Cross Chapter, supervised by the county nurse, and operated by the teacher.

In Guilford County we have enrolled 2,450 modern health crusaders. Our children "take to" this method of keeping tidy and well, as it is presented to them in the spirit of play; the rules are simple and they like the game.

This health course may be introduced into the schools as a part of the morning exercise and not interfere with the days program. In some of these schools the awarding of the honors have been made a gala occasion by having the class of girls and boys making the required number of chores, sit on the rostrum and invite a member of the school committee or the County Health Officer, to make a short talk and present the badges. This attracts the attention of the parents and pleases the children.

The crusade system has been made a curriculum activity in thousands of schools and is given credit for.

Most of the chores are done out of school hours, being mostly home work.

Chore No. 1.—*I washed my hands before each meal today.* Our crusaders are taught that communicable disease is largely a matter of personal and household hygiene, and that ten of the ways to catch catching diseases are these—ten fingers. If our children are permitted to eat lunch with dirty hands, even if the lunch is alright (and so often it is not) how much progress have we made!

None of our teachers enjoy facing all day for weeks and months, a room full of dirty, ungroomed children. In every instance we get the whole hearted co-operation of the teaching staff, and may I say the teachers learn things about health, too? We cannot blame the mothers. So many mothers, especially the rural mothers are overworked, sending perhaps several children off to school early in the morning, packing lunch, small children left at home for her to care for, the milking, sewing, mending, washing, ironing, cleaning, using her leisure time for hoeing in the garden is not as observant or careful of the niceties of health and habits for her children, as is necessary. The children have not formed their life habits and so are careless, too, but with a definite program, and a health chore folder, for a guide, directed by the teacher, the results are not only successful, but in many cases, surprising.

Johnny, who was never known to "wash and comb" without an argument or maybe something more persuasive, jumps at the chance of living up to the highest moral of the health crusade, and will perform these unpleasant tasks as a privilege.

Chore No. 2.—*I kept fingers, pencils, and everything likely to be unclean or injurious out of my mouth and nose today.* One of our State Health Bulletins sometime ago published an article, "If saliva was blue!" We picture to the children what a blue world this would be were this true, emphasizing the other dangers if chore No. 3 is not strictly observed.

Chore No. 3.—*I brushed my teeth thoroughly after breakfast and after the evening meal today.* It is not my purpose to more than mention oral propolaxis, but may I say that nearly all our hopes are centered here, and necessity forces us to pay a great deal of vigilence, propaganda, and demonstration to chore No. 4.

Chore No. 4.—*I took ten or more slow breaths of fresh air today. I was careful to protect others if I coughed, spit or sneezed.* "How to cough," is one of the big lessons of the modern health crusade and when we explain influenza, pneumonia, T. B., sore throat, etc., our crusaders are glad to "Cough Right." The picture of the man (as pictured in our State bulletin) coughing a spray out over women, children and babies, impresses them as crime of which they do not wish to be a part. Having been a part of two practical demonstrations of spray-borne disease, our two epidemics of flu, the crusaders are interested in curtailing the activities of the Grim Reaper, statistics showing his harvest was greater than the loss of our soldiers from German gun fire in the same length of time.

Chore No. 5.—*I was in bed ten or more hours last night and kept my windows open.* Some authority has said, that the white race is disappearing faster than any of the others. By our methods of prevention and health habits, we hope to at least make a start at curbing this tendency by doing our part as teachers to make tomorrow's citizens strong and healthy in body and mind.

Chore No. 6.—*I drank four glasses of water, including a drink before each meal, and I drank no tea, coffee, nor other injurious drinks today.*

Chore No. 7.—*I tried to eat only wholesome food and to eat slowly today.* It seems such a pity the country child has so much food, such an abundance of food and often is poorly nourished. In Guilford County we are hoping, together with the Community Clubs and the teachers, to serve in the schools, hot lunches, or at least one hot dish or cocoa or soup, every day. Also to visit the homes and talk with the mothers of the underweight children.

Chore No. 8.—*I tried hard today to sit and stand up straight, to keep neat, cheerful and clean minded, and to be helpful to others.* The encouraging physique for T. B. is the round shoulders and the narrow chest. All the children know what T. B. is, because in nearly all their families there has been, or is a victim. Much stress is put on chore ten. Very definitely, too, another reason is given for sitting and standing erect, that the vital organs are in the chest and in order that they function properly, they must have plenty of room and not be crowded by one another.

It is the aim of this health program to supplement the school inspection to such a degree that disease-producing germs can find no welcome or lodging place in the body of the school child and by this measure to bring about an economic effect of moving the repeaters. The reflection of this course in the home is illumination and while the parents, as a rule, do not contract the contagion—washing, combing and brushing—they do encourage the efforts of the children, because they, too, like clean, healthy children, and in some instances they follow their children's lead. We hope that by this splendid health education given in the schools, a little child shall lead them, the parents.

Dr. L. J. Smith, Wilson: I have been very much interested in the addresses of these ladies, and I believe that we, as health officers, can learn much from them. I have learned a great deal this afternoon

The two outstanding things which I have heard discussed are personal contact and visual education. These two things are our greatest weapons in the education of the public along health lines.

Dr. L. B. McBrayer: There is one subject which has been touched upon in the last address and in the majority of the papers presented this afternoon—towit, nutrition. It is possible that we may find out a little later that the nutrition of the child has more to do with the prevention of diseases contracted through infection than perhaps any other thing at our command outside the specific immunity that can be given. I think we are groping after the solution of the lack of nutrition and we are talking about it in children, and that is the place to begin to talk about it. If there were nothing else at stake except the economics of education, there would be a handsome profit in finding out the children in every school in North Carolina that are under-nourished and in seeing that they are properly nourished, because a very large per cent of the under-nourished children fail to make the grades. Certainly a very large per cent will be found to have physical defects that need correction. But a great many others are under-nourished for lack of the proper food at the proper time. The health crusade, which has been presented, is a splendid way to get children interested in preparing themselves in a hygienic, cleanly way for their meals, and in eating properly.

The thing which I am going to mention now is one thing that I am anxious everyone here should investigate very carefully, and that is the hot school lunch. The hot school lunch has become a fad, because, as I said in the beginning, we are groping after this very thing. We found that a certain number of children were under-nourished, and we supposed that a hot school lunch would wave the magic wand and relieve all that. It does relieve it to some extent, but, in my opinion, the hot school lunch does not cover the subject. It does not relieve the lack of nutrition, and I do not believe it is worth what it costs for the reason that it does not relieve the lack of nutrition in all the children and there must be something else done, and for the second reason that it possibly takes our mind away from the main point of the subject. That is, we are giving this hot school lunch and the community takes on a great deal about it and we all talk about it and think we have done a great deal, and we are liable to let the hot school lunch obscure the real thing that is the trouble. I am glad that we have one thing that is not confined to the poor, so that in this particular instance the person of small means cannot think that we are patronizing him because he is of small means. This under-nour-

ishment, as our President mentioned today, is found in the home of the banker as well as in the home of the tenant farmer, and those who have worked hard and studied longest on this subject find that it is necessary for some trained worker to go into the home and find out the reason why the banker's boy or girl is under-nourished. And when these good women go into the home and ingratiate themselves into the hearts and minds of the father and mother and children in that home, as they always do—and God knows we would be surprised if they did not—they will get that father and mother to feed those children the right things. I do not believe that anything else will accomplish the thing we are after—that is, to relieve the under-nourished child. It is a very simple matter of weighing each year, keeping an accurate tab and keeping the interest of the family at sufficiently high pitch to see that the child is properly fed.

As I said in the beginning, I am not prepared to say that the hot school lunch is not a proper thing. but it is my honest opinion that it is not, and it is in danger of obscuring the subject so that we do not get at the real cause. I hope that during the coming year every health officer and every nurse will get down to solving this problem, and come up next year and be able to tell us what is the matter, for this is one of the most important things to the citizens of North Carolina.

Dr. N. B. Adams, Murphy: I am heartily interested in the public health nurse question. Living over in Cherokee County, the most western county of the State, some sixty miles east and west and twenty-five miles north and south, we can easily appreciate the value of a nurse.

In Cherokee County there are two nurses. In Andrews Miss Wilson has been working for over a year, and she has done a wonderful work. She is supported by the Red Cross Chapter of Andrews. The Chapter is supported in a measure by the men employed by the factories or manufacturing plants at that place, the sawmill, the acid plant, and the tannery. Some subscribe only ten cents a month. This is taken out of their wages and applied to the support of the nurse. Some give a dollar a month and some more. Suffice it to say that Miss Wilson has been enabled to stay in Andrews and carry on the work. The ladies of the town have built her a beautiful little home and have equipped an operating room there.

In Murphy, my home town, Miss Bradley is working.

It goes that way; each pays what he can. I just mentioned this in order that someone perhaps may get an idea from that one situation

there in our county. The nurse and the Woman's Club of Murphy are heartily in co-operation with the doctors, and the Red Cross Chapter and nurse at Andrews are heartily in co-operation, and we are getting great results.

Dr. W. M. Jones, Greensboro: I have been particularly interested this afternoon in the discussions, and the bone of contention, or the point at issue, is education. We keep on harping about going to the schools with it. Let us keep on going until we knock the whole educational system down and break it up. The thing is wrong. We have made little change in our educational system in two hundred years. There is too much dross and chaff. That is the trouble with our educational system. The long hours in school for little folks I think have a great deal to do with malnutrition.

I was glad to hear Dr. McBrayer speak about the hot school lunch. Let us go a little slow and not dive into the thing. A few years ago we harped so much about the caloric value, and restaurants over the country gave the number of calories in each serving. But that did not mean a thing to my mind. As Dr. McBrayer has said, we are groping around this point of nutrition. I believe that is the subject now, but let us get it right. Let us not make a false start. I believe that we have to have so many calories, etc. I believe that milk is one of the best things, and that it is not expensive at any price. We may cut down on other things, but not on milk.

Mrs. Hargrave deplored the fact that politics enters into this question, but we have had it here since time began and I think we shall always have it.

As for the Health Crusade, that little button proposition is good. The Palmer writing system uses a similar little button, and when you take a big corporation and you see them use this idea, and see the delight of the little folks that get one of these Palmer buttons or Crusade buttons, why they would rather have it than nearly anything they get. When you have done that you have touched the foundation and you will get results.

Dr. C. W. Armstrong, Salisbury: I can not quite get Dr. McBrayer and Dr. Jones on the hot lunch proposition. We have hot lunches in all of our Salisbury schools, but it was never intended to be the whole thing. It is only one link of a chain. Even if we do not do anything else but give them a hot lunch I think it is a corking good thing, but I think we ought not to stop there, but go ahead. In Salisbury we are planning to put milk in all the schools. We are going to have some nutrition classes also.

Mr. A. B. Cameron, Supt. Moore County Schools: I am, I suppose, the only school man here, and I have listened with quite a good deal of interest to the discussions of these various phases of the work, and I just want to say that I am in hearty sympathy with the Health Crusade and with all the other work that is being done to give us stronger, better, and abler boys and girls, physically. Speaking of it strictly from an economic standpoint, educationally speaking, it is certainly a good investment to look after the physical side of the boys and girls. I have been for a long time of the opinion that we can not have successful work and that we can not develop good citizens unless at the same time we develop good animals. I believe that we must have good animals as a foundation for educational work. I believe, with the good brother who addressed you a few minutes ago, that a good thing, but I think we ought not to stop there, but go ahead. The time is too short to go into that, but nevertheless, I have been forcibly impressed with it for a number of years and since I have been Superintendent of Schools in this county, I have been convinced more and more every day as I go about among the schools and homes. There is so much evidence of the need of nutrition and of care of health and of those things which will put the body in condition to do efficient and effective work.

We have been so fortunate as to secure a whole time nurse in our county, Miss Craft. She came to me one day soon after she came into the county and wanted to know if I would be willing to co-operate with her just a little in the work she was undertaking to do. Well, I have not been so glad for a long time to see anyone as I was to see Miss Craft, because I recognized the need of her work and that she would help me in my work. I recognized the fact that if her work was not done, badly as it was needed, my work would be in large measure a failure. So Miss Craft and I have been working together all along. I have not been able to give her all the help I have wanted to give her, but I have done what I could, and I have preached this Health Crusade work wherever I have been. We are not accomplishing just yet all that we want to do. We are not by any means achieving the goal in its fulness, but we are doing something that I feel will mean a great deal to the boys and girls of Moore County. I just want to say these things that you may know that in Moore County the schools are co-operating and the people are interested.

I should be glad indeed if a suggestion given in one of the papers could be put into operation as early as practicable. I think that a good many of our teachers need a good bit of training along that line. A great many times they do not understand, and sometimes they are

hindered a great deal because public sentiment is not in favor of what should be done and they are timid. If the State Board of Health could go on record as having made part of a teacher's equipment for license I believe that it would be a fine thing.

Question:—Do you think, if the physicians and health officers should co-operate and try to get the State Board of Education to make physical training and training in sanitation and hygiene compulsory, that they would do it?

Answer:—I think that it will eventually come, not all at once, but gradually.

I just wanted to say these few words in order that you may know that in Moore County we appreciate what you are doing.

Miss Rose M. Ehrenfeld: I greatly appreciate the speaker's comment on Miss Craft's work. She was the first nurse to graduate a class of colored girls in the "Little Mothers' League." Moore County is the first county to put on a colored nurse for rural work. Miss Craft was the first county nurse to get the Modern Health Crusade in all the schools, and I think that the attitude of the last speaker toward health work helps to account for its success.

EVENING SESSION

BACKWARD AND DOWNWARD TREND OF THE HUMAN FAMILY IN AMERICA

J. E. Malone, M. D., Louisburg

One of the most, if not the most important, law passed by any congress or legislature in recent times, is the one making it necessary for parties contracting marriage, to show freedom from loathsome or specific disease. Here we strike at the foundation source of the present degeneracy of the human family. When a man, or woman, enters into this sacred union it should be absolutely imperative that he or she should be free from any infectious or specific disease, not only for the protection of the other contracting party, but for the safety of the innocents unborn. Science has established beyond question that such contaminating disease may be transmitted indefinitely, thus wrecking the happiness and usefulness of many thousands who are entirely blameless. Few people think seriously on this subject. They do not take the trouble to study statistics, which give indisputable

proof of the enormity of this crime against heredity. It must be agony unbearable for any parent to look upon the face of a child and see its expressionless eyes, or its little frame tortured by suffering, or twisted into repulsive deformity, and realize that this is but the result of his own mistake. "The sins of the father visited on the son"—an inexorable law of God. Or, keener still, the pain if this child should come in apparent safety, through its earlier years, only to develop, in maturer life, a disease which renders him miserable in a world which should be to him brimful of brightness, or useless in a period teeming with great and brilliant opportunities for service. The victim may realize all too late and well that he is indebted, for all this misery, to one who should have protected and saved him from all such horror. If this be true, the reproach, uttered or unexpressed, must fill the heart of the author of this woe with unspeakable remorse. The subdued voice of millions of earth's suffering ones demand to know why this condition has been allowed to exist for so many generations. It was understood long ago that the marrying and intermarrying of those who had contracted disease in their youth had caused the spread of contagious and hereditary disease throughout the world, yet governments and statesmen and institutions took no steps to crush this evil. The legislature of North Carolina, if they made no other law, passed one that will prove a blessing to humanity, and will reflect honor on itself. Good roads, public institutions, pensions for old soldiers, are all good enactments, but any law that will help secure safety for the future of the human race is of the greatest importance. To understand this fully we have but to note the number of imbeciles, mentally defective, and insane who fill our jails, asylums and county homes, close examination often revealing the fact of an old lingering taint of syphilis being responsible for such condition. How many inmates of our jails, penitentiaries, and actually our homes, have had their moral forces aborted by inherited disease? America, our country, is infested with mental and physical defectives, dragging their miserable existence through a world full of happiness and service, upon which they are forced to look with downcast eyes and dejected countenances—afraid—drawing back within themselves—as it were, alone. These unfortunates, if not bold, for want of human sentiment go slinking through life, the avoided ones by society. Yet it is a patent, blameable fact that governments and statesmen have shut their probing, investigating eyes to the existence of conditions that have brought about this state of things. A government, which has allowed and sanctioned the human family to go on marrying and inter-marrying, spreading and inflicting its people with disease, de-

formity, mental defective, half-men, has caused more suffering and death than all the wars of the world. During the last world war, when the selective draft boards were functioning all over our country, the writer had the opportunity thrust upon him of examining hundreds and hundreds of our young men who were called to service for their country, and it was distressing to find so many of them who could not qualify on account of some mental or physical weakness, the result of a taint transmitted from their parents. In fact, how few of the large number of them were 100% efficient-fit. Some writer has said that there are too many feeble-minded in our race—a fact. In our public schools in the United States, and especially in our larger cities, too many children are mentally below par, segregated into rooms where they grow up to become vagrants and criminals. The city of Boston had in her public schools 77 rooms devoted exclusively to the backward children. Their children, who will be legion, will be below par. What kind of a citizenship can we hope to obtain from these incompetents? If marriage is guarded from disease and its effects, precious few children are born with distinct inclinations for crime, but a sorry lot of them are born every day with too meagre brains to make a living in the path of virtue. Humphries says, or asks, how many come so far on the way to racial degeneracy without any attempt to check ourselves? Many, he thinks, because of a pious horror of interfering with the rights of parenthood. The place and way to protect and prevent these conditions, to save and husband our race and family, is at the marriage altar and our schools. Germany had the right idea many, many years ago, when she took the initiative in her preparation for her great war. She went with well equipped medical experts to the marriage altar and her public schools, discovered, prevented and corrected wrongs. Educated parents and children, especially the children, mentally and physically, especially the boys, and when the war broke out, she marshalled an army of athletes. The medical profession, backed by our statesmen, have made great and rapid strides towards the consummation of perfect health laws for our people, but two laws stand out on our statute books passed by two legislatures of North Carolina that reflect the wisdom of mind and interest of heart of its members, and will bless the families of North Carolina forever. The protection at the marriage altar and the medical examination of all public school children every three years is our work. Mr. Wells, writing in the *Saturday Evening Post*, states in one of his articles on the salvage of civilzation, that one of the causes of the tumbling down of our civilization, and tumbling down fast, is the failure to control vice. In the handling of infectious

disease and the suppression of international criminals, we are proud that North Carolina stands abreast with all the interested workers along lines to protect, encourage and advance the good work of trying to purify, enlighten and physically make good the civilization of our great old North State.

Oh, the illiterates, the defectives of our race, the curse of it! The Selective Draft Board, in its work for the World War, while it showed such a large number of physical defectives and inefficiency, also showed nearly 700,000 men of draft age unable to read or write in the English or any other language. In fact, there are nearly 600,000 illiterates in this country who are twenty-one years of age, and 8,500,000 persons ten years of age or above who could not read or write the English language. Now, both of these conditions can be so easily prevented and corrected by standing up before the marriage atlar and going into the public schools and saying, as our boys said in France, "They shall not pass." While the school child's mind and body are tender and impressionable, touch and handle them as clay in the potter's hands. There are so many ways and means in our hands and at our disposal by which we can improve our race, that we should beam with optimism and interest, take hold, and do the greatest work now before us. Give us pure-blooded horses, cows, sheep and dogs, but, above all, give us a good citizenship, manly men, womanly women, pure, intelligent of mind and perfect in form, or let us approximate it as nearly as possible. I believe that as a result of the World War we are keener to observe and bolder to speak of and try to discover, prevent and correct wrong. Years ago we were too modest and ashamed, and rather dreaded to "speak out in meeting." The mention of venereal disease in public was tabooed; it was spoken of with bated breath. The romance of marriage was heralded and acclaimed in polite society the world over, but as to there being any reason why these romantic or any other marriages should not be censured or the parties to the contract prevented from transmitting evil of mind and body, "Nothing doing." The improvement, betterment, and, in fact, the salvation of our race rests upon the shoulders of physicians, teachers and statesmen. We can have an intelligent and sturdy race if we will do the work before us. God created man in His own image, endowed him with knowledge, wisdom and love, and surrounded him with all the many facilities to enable us to approximate Him in these three attributes. In omniscience, omnipresence and divinity we are as nothing, for these three attributes are His altogether. It is our duty to develop and exercise our three God-given attributes, and to lead our race upward and onward.

Dr. N. B. Adams, Murphy: Mr. President, I feel like I want to say something. I want to say in the beginning that I feel that the law that has been alluded to in this paper is one of the greatest strides forward that has been made legislatively along this line in the history of North Carolina. At the same time, there are some things that will have to be overcome. You know that it is almost impossible for us to get something done at one time that is perfect. Living in Cherokee County as I do, a border county in western North Carolina, bordering on Tennessee and Georgia, it is easy for a man who wants to marry, regardless of his condition, to step across the Georgia line, thirteen miles away from my town, Murphy, and marry in spite of the laws of North Carolina and come back in North Carolina and be a citizen there. That has happened in my experience within the last three or four weeks where a man could not get a certificate of marriage in Cherokee County, a certificate that he might marry in the State of North Carolina for that matter, and he promptly took himself down to Blue Ridge, Georgia, married his wife and came back. That is one thing.

Then, according to that law as passed, it states, if I am not mistaken, that the county physician shall make these examinations free of charge. If it is to be an examination, sir, that will prove that the man is non-syphilitic, or otherwise, in some of the western counties it will be necessary to take the blood test, and send that to Raleigh or Asheville where they are prepared to make that examination. This would require some seven days. A good many times the man and the woman will not wait seven days but will step across the line.

These are things that have come up and I just mention them, gentlemen, but I do want to go on record as endorsing that law with my whole soul. I believe it is one of the best steps forward that the medical profession has ever made in the history of North Carolina.

Dr. L. J. Smith, Wilson: I, for one, when this law was passed was a little bit skeptical, at least as to the expediency of such a law in North Carolina in her present educational development, but the need for such a law has always been unquestionable. I agree with the doctor that this is the greatest piece of legislation ever passed in North Carolina, not only for its immediate effect but for its moral effect upon the minds of the citizens of North Carolina. It is bringing to them in a forceful manner the dangers of two or three diseases that have never been brought to their minds in such a way as this is being brought about.

I have had the pleasure, or at least it was my privilege to turn down three men who said they didn't know they were infected and I think I saved three girls a life of misery

In answer to the doctor's objection about passing from one State to another, I would just like to throw out this suggestion: I don't know whether it will work at all, but it strikes me if a man is going to get married and it is known the examination is necessary and he has good reason to believe he cannot pass the examination and he says to the girl, "Let's slip over into Virginia or Tennessee and get married," if she is the right kind of girl, what is she going to do? She is going to do some tall thinking and when she goes to thinking, something is going to happen. There are going to be some engagements broken. I think this will work to offset the evasion of the law. There will be such occasions as you mention but I believe the majority will never come to marriage.

Dr. A. H. Lindorme, Wilkesboro: It is all right to pass a law, but you have to go behind the law, you have to have the moral support of the people behind the law. Educate your girls, let them know what they are going up against. Why is it for years, centuries, there has been a double standard, one for the girls and one for the men? Cut that out, require the man to be as pure at the altar as the woman. If you do that you won't need this marriage law. A boy can sow his wild oats, raise hell and then go back to Sunday School and he can marry any girl in the community he wants to. Let a girl make one false step and she is condemned always, even though she may do it unthinkingly. Require the same thing of the men, and let the girls be trained and understand it and let them require it of the men, and you will go further than any law that you can put on the statute book, or any law that any legislature on the face of the earth can make. Teach girls as well as the boys sex hygiene in a sensible, scientific way. Let them know that there is such a thing as venereal diseases. Teach them of its dangers to herself and her offspring. It is a matter of education and much can be done in this way.

Dr. Albert Anderson, Superintendent State Hospital, Raleigh: I had the privilege of sitting with the committee that considered this law in the beginning of the Legislature. I was surprised to find out during the Legislature how many Legislators felt about the wisdom of passing a law of this kind at this time. To my surprise this law passed after some modifications in the woman's favor. She is not required to stand an examination for venereal infection, but only for

the mental test; the man is required to stand for both venereal and mental. While we cannot look for perfect results from an imperfect law, yet as someone suggested, it is a beginning and sets the people thinking. I think great results will come out of it. The examinations, of course, will be varied in their degree of efficiency, but as before stated, it will set people thinking along the line of high ideals for both sexes. Public Health workers are contributing much to the prevention of mental diseases. The revolution in the sentiment of the people has been wonderful in the last decade, certainly in two decades, along the lines of Public Health work. I would like to state that the prevention of every infectious disease carries with it a possible prevention of a mental trouble. It is well known that many cases of mental disease have their underlying basis on some physical trouble. The prevention of physical and mental diseases should run along parallel lines, which I have learned in my work for nearly ten years. The last Legislature considered the importance of mental sickness in a very encouraging way by making very satisfactory appropriations for the enlargement of our work. Nobody was disinterested enough or ignorant enough to say that the hospitals in North Carolina should not have all they needed. I was really gratified and a little surprised at the generous appropriation made for the solution of this important problem. We have lost much in the past by not solving this problem in making larger additions to our State hospitals for the mentally sick. As soon as we can get our appropriation into buildings, we will relieve the present embarrassing situation. It is almost enough to make a Superintendent go crazy by receiving applications every day that he cannot consider favorably. It is now and has been ever since I have been in the work, an acute situation every day. It is the most hurtful thing to have applications come to the hospital, maybe two or three a day, which we cannot take out of poorhouses, jails and places of confinement too horrible for description that should not be tolerated in our day. The great State of North Carolina has finally come to make an appropriation sufficient to properly care for the mentally sick. I am sorry that we cannot put into buildings our appropriation in a few months to relieve the present situation. The two great causes, venereal infection and alcoholism, are being lessened every year by the great crusade against these two giant evils. In the last American Medical Journal, Dr. Geo. H. Kirby of New York, gave us information about the fight against these two causes made in the great State of New York. Dr. Kirby is a son of an ex-superintendent of my Hospital, and it is my pleasure to state to this body that he is a man that we should all know and be proud of, because he has reached the highest

scientific position held in this country, that of being Director of the Psychiatric Institute of New York. Under his direction are more than 40,000 mental cases. He is an authority because of his ability and training. The statistics given on the decrease of alcoholic cases on the alcoholic ward of Bellevue Hospital are interesting; also those of mental cases from venereal trouble.

Let us stand behind this great movement that the Public Health men are doing, both for the prevention of venereal and mental diseases. We know the great need of this after making some inspection of county homes and jails in North Carolina. In the year of 1920 the feeble-minded and the mental cases certainly need a better chance.

Dr. K. C. Moore, Wilson: As I see it, the advantages of this law lies entirely with the doctors, and especially with the health officers, since the persons can get the examinations free of charge by going to them, and I believe that the best thing that the doctors in the State of North Carolina can do is to adopt some uniform examination, so that when they sign these certificates they will have exhausted everything within their power to say whether the applicant is free from venereal disease or tuberculosis or any mental disease. Unless we do that, the law is going to be absolutely useless, or if a few make an honest examination and a few shysters give the certificate for a dollar the law is no good.

As to the applicants going to another State, I agree with Dr. Smith; it is going to be a mighty sorry woman, when the people all over the State realize the importance of the law, that will run off with a man when he suggests that they run over to another State for marriage license.

Dr. Malone, closing the discussion: This law is all right but the carrying of it out. I was surprised that the Legislature did not put on some little extra attachments about how much examination they ought to submit the applicants to, but that law is all right if our statesmen and doctors will get together and discuss it, so we can carry it out. As I said this morning, we punish people for not carrying out laws, and the proper punishment should be inflicted on those who try in any way to evade this law, but they cannot get their license until they show a certificate of examination. That law is all right, but there is one thing I want to say: that law of examining school children is just about as good as the other, if not better. I think we ought to carry that out to its fullest extent because we have the children there in our hands and we can mold them, we can improve them.

A year or two ago I had 7,000 in my county down there. You know how it is done, I went around every morning at nine o'clock with my wife and went to four schools and examined the children, and after the examination we had them all brought into the largest hall and gave them a little talk, about ten minutes, about the teeth, instructions how to brush them, all that sort of thing, examined four schools. I would go home, find fifteen soldiers to be examined, and then work until one o'clock on the cards. Operated on 86 for adenoids, tonsils and did a good work all along this line.

I think the marriage law is all right and I think the school law is all right and can be carried out, and I am in for carrying it out.

PURPOSES OF MILK STANDARDS

J. H. Epperson, M. D., Durham

Those of you who are engaged in Public Health Work are constantly confronted with various problems relative to the prevention and control of communicable disease. In this line of work, "Milk and Dairy Inspection" attracts no little attention from the average Department of Health. In this connection I am forced to say, that from the various reports I have had opportunity to see from time to time of milk inspection work in connection with Departments of Health, that I am right in using the words "little attention," especially to certain features of the work. I have gained the impression from certain reports I have had occasion to see that the work of milk inspection in certain communities in other States, as well as this, consists chiefly of regular routine visits to the site of production, with an occasional tuberculin test of the herd, etc., In other reports I see that the work consists of requiring the village milk peddler to report at the Health Office once each thirty days with a bottle of his specially produced lacteal fluid for his monthly bacteria count and butter fat test. I am not offering this argument as criticism, because I fully realize that in a good many Departments of Health it is only possible to do the work in a partial manner owing to the varied duties imposed on the official charged also with the duties of milk control.

In the seven years which I have been actively engaged in the work of milk and dairy inspection I have endeavored to follow a certain routine procedure in conducting the work as follows:

1. Realizing the possibility of certain diseases being transmitted by the milk route, I have endeavored to close and keep closed all the avenues of infection.

2. To realize and appreciate the difference between and unsightly and an insanitary condition at the sight of production, and to govern my actions accordingly.

3. To treat the producers in a respectful but positive manner and ever remembering that there is an economic side to dairying in which the producer is mainly interested.

4. To see that the product goes to the consumer containing all of its natural and normal constituents, and physically and bacteriologically safe.

5. To collect samples from the delivery wagons in the process of delivery and subject same to a chemical, physical and bacteriological examination, in order to determine if the principles of proper dairying are being practiced at the sight of production, and to transmit this information pertaining to the grades or standards to the person paying out his good, hard-earned money for the product.

6. Last but not least, to use good, common horse sense and plenty of it.

The fifth feature which I have enumerated here is the one which appeals to me most, and which I am bound to believe has the greatest to do with the quality of milk produced and dispensed in any given locality; therefore, I will now confine myself to the "Purposes of Milk Standards."

I have had the opportunity of testing out a great many systems of milk grading and I have always found that there are certain objectionable features which are hard to overcome. The Department of Health of the city of Durham, N. C., is using, and has been for the past two years, a system which I am led to believe is entirely practical. This system was instituted at my request by the Market Milk Division of the U. S. Department of Agriculture, and includes the grading of the product on the three main characteristics of milk, viz., bacteriological, chemical and physical. By the bacteriological examination, we arrive at the sanitary analysis of the product through the determination of the number of bacteria present per c.c. which is a general sanitary index milk character. The physical examination includes the examination of the product for visible dirt or sediment, flavor and odor, temperature at time of delivery and the manner in which the package is sealed. The chemical examination includes the examination of the product for adulteration, solids not fat, fat, etc.

In the score card used, a perfect score on bacteria count permits awarding 35 points out of a possible 100, flavor and odor 25, visible dirt, 10, fat, 10, solids not fat 10, temperature at the time of delivery 5, and bottle and cap 5. The final grade is arrived at by a graduated

scale by which the findings may be applied of the sample in question, and the correct result tabulated on the score card under respective headings, finally adding the total for the completed grade of the three main characteristics. From time to time the general character of the product of any one dairyman may be determined by using from three to five of his individual grades over a given period. This information may be dispensed to the public in various ways at the discretion of the officer in charge.

Proper milk standards are essential to efficient milk control by public health authorities. In the first place health authorities must ascertain that the chemical composition corresponds with established definitions of milk as food; but their more important duty is to prevent the transmission of disease. This means the prevention of the transmission by milk of infant diarrhœa, typhoid fever, scarlet fever, diptheria and other infectious diseases. When we are reasonably sure that we are having pure, wholesome milk, free from any of the above infections dispensed to consumers, then it further becomes the duty of the Department of Health to encourage its use because, in my honest opinion, there have been more children die from the lack of it than ever died from the use of it.

The milk producer, as a general rule, is very much interested in the proper standards of milk, for the reason that these contribute to the well being and dignity of the milk industry itself. Proper standards rightly enforced distinguish between the good milk producer and the bad milk producer. It will enable the good producer to get properly paid for the quality of milk he produces and thus eventually put the industry upon a dependable basis.

The milk dealer finds the classification of milk resulting from milk standards to his financial advantage for the reason that it identifies clearly first-class milk from the product of a lower grade. Such a distinction gives to the seller of the highest grade product the commercial rewards which such milk deserves.

Milk standards are useless unless properly guarded and enforced. One of the main objections that is constantly being raised to a grading system for milk is the difficulty of insuring that milk labelled as of a certain grade is actually of that grade when sold to the consumer. By constant and repeated examinations of any given product this objection is being reduced to a minimum. The dairyman soon learns that by the proper application of certain principles in regards production and handling that his grade will remain fairly constant, and that negligence of these principles means reduction in grade and quality.

The thing which appeals to us most in the grading system hereto-

fore enumerated in the form of a score card is the 35 points which are allotted to bacteria present per c.c. Rightly this feature should be given the most attention for the reason that we, as Public Health Guardians, are directly interested in the sanitary analysis of the product, more so possibly, than the other features of the grading system. The Commission on "Milk Standards" of the New York Milk Committee, consisting of seven bacteriologists, eight health officers, and two agriculture experts, on completing their report, have said the following in relation of large numbers of bacteria to infant mortality: "The Commission believes that the number of bacteria in milk have a relation to the infant mortality for the following reasons: 1. Evidence furnished by clinical observations of groups of children fed on milk containing small numbers of bacteria shows a higher death rate in the latter than in the former. 2. In general, a reduction in infant mortality in cities results from a substitution of milk containing small numbers for milk containing large numbers of bacteria. 3. Bacteria causing no specific intestinal infection in adults may cause infant diarrhœa, and milk containing large numbers of bacteria more often contains species capable of setting up intestinal inflammation in infants than milk containing small numbers of bacteria." Then, if we accept the statement of this distinguished body, we must apply ourselves to producing milk with as low a count as possible if we would lessen infant mortality. The bacterial count has a further significance. It is an indicator of decency of milk character entirely apart from its significance as an indicator of the safety of milk. In determining the sanitary character of milk and the grade in which it belongs, decency must be considered as desirable for its own sake, entirely apart from the consideration of safety, because high counts indicate that milk is either warm, dirty or stale. Decency is important as a characteristic of foods and drinks because it gives pleasure to the consumption of foods, while the lack of decency means distaste, displeasure and even disgust. The bacterial count is a sufficiently accurate measure of decency to justify the health officer in excluding milk of high count because it is lacking in this characteristic.

The other features of the score card, viz., flavor and odor, sediment, fat, solids not fat, temperature and condition of package are all very important in determining milk character and should by no means be omitted from the routine examination in determining milk character.

At this point I desire to make mention of the significance of the bacteriological laboratory in the control of public milk supplies. It has been said by an eminent authority on the subject of milk inspection to be the "eyes of the milk control official" and without it, it is like a

story half told or a song half sung. Production and distribution cannot be accurately controlled unless we include in our program regular laboratory examinations of milk by bacteriological and chemical standards. The adoption and enforcement of milk standards will be more effective than any other one thing in improving the sanitary character of public milk supplies. In my opinion, it is of the utmost importance that standard methods should be adopted by all laboratories for comparing the bacterial, chemical and physical character of milks, since by this means only is it possible to grade and classify milks and properly enforce milk standards.

Pasteurization of milk is fast becoming popular in this State, and it is therefore necessary for milk control officials to deal with the situation intelligently and efficiently. One of the chief objections that you hear raised against pasteurization is the claim that it is frequently employed to cover filthy methods, the milk producer using less care in his methods if he knows his product is to be subsequently pasteurized. To meet this objection there should be standards for the raw milk, as well as standards for the finished product. Many of the cities and towns of this State are starting small pasteurizing stations, not solely for the purpose of improving the quality of milk sold, but for economic reasons. And certainly we, as public health officials, must necessarily be students of economics, as well as students of public health and welfare.

The first step in establishing milk standards for any given community is to take into consideration the necessary age of the milk, the distance it is hauled, and the methods employed in its handling, in addition to the sanitary conditions prevailing at the source of production. It will always be possible for a community having very few dairies, easily controlled, which consumes milk produced within its own limits, or within transportation of twelve hours or less from the source of supply, to insist upon and maintain a better and higher standard than can a community where the milk is hauled many miles into town, to be consumed within twenty-four hours after it is produced from many sources more difficult to control. The small city, for these reasons, can and should always maintain a higher standard than the larger city that depends on getting its milk from a distance.

The milk supply of the various cities of this State I am informed, produce and distribute milk somewhat under similar conditions, and it has occurred to me that if a permanent Milk Commission could be established in this State, with their main purpose in view to establish uniform principles and practices in the art of grading the milk supplies of the various cities that are now doing milk control work, we

could put the business on a more dependable basis and avoid much local criticism. It is not uncommon to hear some dealer complain, when a low grade is given, that it is a pet scheme of grading of the local milk official. If the Milk Commission adopted uniform methods of grading, and all cities would co-operate, this undue criticism, in my opinion, would be avoided and milk supplies now at a low ebb would either improve or cease to exist.

In closing, I desire to express my appreciation for having had the opportunity of appearing before you and, if it should be your will and pleasure to appoint such a Commission in this all important matter, I would respectfully recommend that the Body shall consist of five health officers, five bacteriologists and one agricultural expert on milk from the State College of Agriculture.

Dr. J. H. Epperson, Durham: We have with us tonight a man who I think could well discuss this paper, Mr. Lucius P. Brown, late director of the Bureau of Drugs of the City of New York and also late Director, Commissioner of Food and Drugs in Tennessee, and also late captain in the United States Army.

Dr. Carlton: We would be very glad to hear from Mr. Brown.

Dr. Lucius P. Brown, Franklin, Tenn.: Gentlemen, I thank you very much for this opportunity of coming before a North Carolina audience. Ever since one of my ancestors along with the Brevards and others stood on the Court House steps in Charlotte and told the British Government where to get off, I have had a high regard for the State of North Carolina, and now I feel as though I were coming back home.

One of the things which I thought most outstanding in the paper just read is the strong sense by which it is actuated. The suggestion that one of the largest parts of enforcement of law is common sense is one that those of us who have had long experience can all appreciate. Fortunately, as public health work goes on common sense is coming to be applied more and more and as we understand better the methods by which the milk-borne diseases can be easily prevented, they are becoming increasingly less. The essayist's suggestion of a commission is also particularly good, it seems to me. It is not necessary to secure governmental sanction for such a body. The New York Milk Committee of New York City is a body supported by public spirited people of New York City, and the expenses of this Commission on Milk Standards are paid by the endowment which the Milk

Committee has. It is hardly necessary for me to suggest the important service which that committee has rendered not only to the city of New York, but to the country at large, because its recommendations are recognized as national standards for milk work wherever milk work is being done. The essayist told me before he came into this room that he believed three States already had such a body. If that is true the precedent is ample, tho' I don't know whether North Carolina is a great respecter of precedent; but in any case where you have such a good thing as the suggestion made it seems to me it should be acted upon.

There are other considerations which are important and your State Agricultural Department will be very thankful, doubtless, if you will go ahead with such work. There is an increasing tendency among manufacturers and buyers of milk products to pay for milk on a basis of the bacterial content, not only for market milk supplies but for milk for manufactured products such as butter and cheese. If you can establish for the State of North Carolina, standards (which will, necessarily, conform to those of other bodies in the United States) they can be used by the farmers and dairy manufacturers in purchase and sale and will tend to stabilize prices. That point is worth considering as tending to get you more public support.

The speaker mentioned the question of milk standards for the raw milk. They are absolutely necessary in any bacteriological control of a pasteurized supply. That has been demonstrated by New York's experience. It put its system of pasteurization into effect in 1914. The results have amply justified the procedure. In the first year preceding 1914, there was an outbreak of typhoid fever, from one supply alone, of 1,300 cases. The next outbreak, one of the things which gave me one of the jars of my life, because it occurred just after I took hold, was an outbreak of about ninety cases, which is not very much for New York, but until I got it stopped, I had an uneasy quarter of an hour. Since then there has been only one outbreak, which itself was due to a direct evasion of the law. I do not mean to say there are not sporadic outbreaks, but there are no more pronounced epidemics. In New York, in addition to as close inspection as is possible to give, which is so necessary and fundamental a part of any market milk control, it is thought necessary to have systematic counting of the bacteria of the milk before pasteurization. A pasteurizing system cannot be put into effect without a thorough control of the raw milk supply, and as a matter of fact, the real design of pasteurization is not to furnish a bacteria free milk, but to insure its healthfulness.

The freedom from bacteria of all sorts is, of course, a very welcome and a very desirable consequence.

As to the matter of grading, if I may be allowed to make a suggestion, I should not entertain such a plan for any town of less than several hundred thousand or a million or two, and even for those I am free to confess my mind is open. It has been found in New York City that the separation of milk for drinking purposes into two grades, A and B, does not have and is not having the effect which it was thought it would have. It has rather allowed the distributors to furnish a little more carefully handled product for a considerably higher price, but the difference in quality between grades A and B is by no means commensurate with the difference in price. If in addition to a good milk supply for drinking, you wish to let down the bars for cooking purposes it may be done. But it should be done, I think, only with the idea that it is an experiment. Personally, I think one grade of milk for the average American town is sufficient, and that must be the best that can be had.

There is another question, the importance of which has not been appreciated until within the last two or three years, and that is the question of the nutritive qualities of the milk. In most milk supplies, standardizing is forbidden. There has been a tendency to allow standardization and I am not at all sure whether it ought not to be encouraged, but if it is to be allowed, some notification should be made to the public of the change in the ratio between the fats and non fats, and in the word "standardization" as applied to milks, we must include condensed and dry milks. Those are not subject to the same rigid control that the fluid is, and I speak entirely as to the nutritive qualities. A condensed milk may have its part of the cream extracted, and the ratio between the important proteins and the fat so materially altered that the physician prescribing such a product would meet unexpected conditions and results. There should be stated on the labels of all preserved milk products (the dry and condensed milks) the exact percentages of the fat and the solids not fat. It is necessary only to pay attention to the solids not fat, for the ratio between proteins, milk sugar and ash is not altered in any system of preservation now in use. Possibly the best method of doing this would be to state on the labels of these products the limits within which the fat and the solids not fat may vary. The matter is emphasized by the importance which nutrition experts generally have assigned of late years to the amount and quality of the milk supply. One never picks up a paper on the subject of nutrition but he finds reference to the desirability of using more milk, and as Dr. Jones has said, milk at any price is cheap.

These are thoughts which occurred to me as the speaker was delivering his most excellent paper. I am sorry I could not condense them a little more, but I hope you will realize that I like to talk about the milk proposition because I am one of those who believe that we are using only about one-fourth enough milk in America.

Dr. J. P. Munroe, Charlotte: I enjoyed what Dr. Brown said very much.

We all some time or other use these prepared milks in one form or another and I have been particularly interested of late in knowing a little something more about the method of preparation. Not that I want to go into the business, but that I want to know the amount of heat used, whether the amount of heat used affects the vitamines, particularly valuable in milk. We know if it is exposed to a very high heat they are very much diminished in quality.

Dr. Lucius P. Brown: I thank you for calling on me, but I dislike to trespass on your patience.

In the condensing of milk it is first run into a vacuum pan and condensed at a comparatively low temperature, something not over, if I remember correctly, 150 degrees, and usually considerably less than that. There are two kinds of condensed milk, one, the sweetened condensed, which contains about two fifths its weight of cane sugar, the other, a whole milk without any addition of an extraneous material. While the process of condensation and addition of sugar is that by which the sweetened condensed milk is prepared, the sugar really acts as the preservative. Sweetened condensed milk is not sterile. The condensed whole milk without sugar must be sterilized, and in order to effect that sterilization it is placed, after being put in the can, into a suitable sterilizer at about 240 degrees. This results in doing what we do when we boil an egg, i.e., the albumin is coagulated, and the albumen is about one-half the protein contents of the milk. The three vitamines—that is, the fat soluble A, or anti-rachitic, the water soluble B, or anti-neuritic, and in a much less degree, water soluble C, or anti-scorbutic, are all contained in milk. Of these three it is entirely probable that the fat-soluble is unaltered, the water soluble B may be more altered but not greatly. The anti-scorbutic is very heat labite. Frequently preserved milk does not contain any, in all probability. As a matter of fact the raw milk, at least that of cows, is poor in this ingredient. Indeed, with any supply subject even to pasteurization, an additional anti-scorbutic should be used for safety's sake, although the authorities differ on that. Some maintain that with pasteuriza-

tion, the danger of scurvy to children has been very greatly exaggerated, and it would seem that that, which is possibly the newest theory on the subject, is deserving of some consideration. So we may assume that in the condensed milk of both sorts, the vitamines, except the anti-scorbutic, are not materially altered.

In the making of the dry milks there are two chief processes. One is called the roller process and in that the milk is dried on a roller, which is heated by live steam. This roller may receive the milk from a tank above it, and it may be either pre-condensed or raw, or the roller may receive the milk by dipping into a trough beneath it, from which the roller takes up a film of milk. In both methods the film of dried milk is scraped off by a knife and ground for use. These rollers are heated up to a very considerable temperature, one very close to the temperature of boiling water and occasionally above it and any temperature above 153 or 154 will harden your albumen. The other process is the spray process. By it the bulk of the milk sold in the United States is made. There are two methods of spray-process dessication. One uses the raw milk and one uses milk after strong condensation. In both the milk is simply injected either along with a current of warm air, into a suitable receptable, or it is injected through the wall of the chamber and in the center of a current of warm filtered air, because all air used ought to be filtered, so as to eliminate a certain number of bacteria from the air and also the dust. In each case the milk is not subjected to a very high temperature. While the current of air is heated quite high before it goes into the chamber, the milk in being sprayed is projected in minute droplets and the drying process immediately removes the water from the milk, cooling the whole mass. The process is almost instantaneous. One looks through the peep holes and it looks like a miniature snow storm. Milk-albumen is not coagulated by heat except in prolonged contact with water. That is, there must be an appreciable length of time for the action of the heat. In the spray-process the drying is so instantaneous that there is no effect on the lact albumen, the consequence of which is that in the spray-process this lact albumen is left soluble in water. As to the action on the vitamines, the fat-soluble is not affected, the anti-neuritic may be slightly affected and the same applies to the anti-scorbutic. These milks have been very largely used in Great Britian in infant feeding stations. I have a report which was published, I think, in 1919, in which a list of some 75 or 80 stations was given in which this milk was used. There are two reasons for that, one, very apparent, is that the British supply of fluid milk has been known among men who know market milk to be in very bad

sanitary condition. The dry milks, under these conditions, have undergone so much pasteurization in the course of manufacture that they contain practically no bacteria. The other reason for the use of the dry milks is their convenience and ready availability, and the ease with which they may be modified. It is the results obtained in these feeding stations in Great Britian which carry the most conviction regarding the good conditions of the vitamines and the efficacy of the dry milks in infant feeding.

Dr. L. B. McBrayer: I feel delighted that our good Secretary put this paper on the program. I have felt in times past that we paid entirely too little attention to this particular subject—I am talking about Health Departments in North Carolina, Health Officers. As an example, a Board of trade in a certain town, the name of which I will not give, in North Carolina had a survey made of health conditions in their town when the mercury was hanging around zero, and the report was not published. I happened to meet the secretary of that Board of Trade and he asked me if I would not like to go up in his office and read that report. I had been crazy to see it, to tell you the truth, and I went up in his office and read it, and the first thing he asked was, "Well, what do you think about our milk supply?" You will note the report says you must take into consideration these bacteria counts were taken when the mercury was around zero and therefore the transportation of the milk was made under properly cooled conditions. He said, "I noticed that." "Well," I said, "I think I can tell you what I think about this milk supply right quickly." I said, "They would not allow you to sell this milk in a certain other town in North Carolina the hottest summer day that ever came along. In other words, you haven't a drop of milk in your town that would be allowed to be sold in another town because of the high bacterial count." He didn't publish what I said about it, either. That means, of course, we are not saying anything about clean milk, and with a few exceptions that I could name very easily we are not doing anything about it. When we talk about exceptions I am looking right at Dr. Cheatham and his Health Department is one of them, and I am looking over this way. With very few exceptions we are doing nothing about it, and yet we all have to admit if we get down to the correction of these nutritive defects that we have been talking about here today, we have got to see that a great many of those children get milk, and it certainly ought to be clean milk. A bacteriologist said to me some time back they are not paying as much attention to the bacterial count as they used to. I could not understand it and I am quite sure now

I misunderstood him because of the paper we have heard this evening. This discussion of clean milk is applicable to the towns where milk is sold, that is, to the towns, the rural counties have their own counts. I think I made a mistake there. Some of the people who live in the country do not have a drop of milk. Dr. Jones, is that right or not? That ought not to be beause as Dr. Jones said it is the cheapest food for two reasons, cost of the production, because it is cheap for children, particularly in price.

There is one thing Dr. Epperson did not go into as fully as he could have and that is clean milk does not always depend on paraphernalia. It is all right to have a nice barn, keep the cows clean and go through certain routine every day, and it is very wise to have that, but it gets down to a personal equation, and Dr. Brown could have told you of some experiments under the operation of the New York Committee where there were very dirty surroundings, barns, yards and stalls, and a very low bacterial count was produced and that was produced probably because the lower the count the higher the price of the milk. I know in the milk supply at Asheville at one time outside of the Vanderbilt estate, the next lowest bacterial count was in a small dairy, with very meagre equipment that was taken care of by a man and his wife, and they did the milking and everything else. They were intelligent people and they knew what cleanliness was and carried it out.

There are two other things I want to say: that is, with regard to the grading. I do not believe that the small amount of milk that we produce—we haven't any town with a million inhabitants in North Carolina, not even Charlotte—and I believe it is not necessary to make grades A, B and less milk in North Carolina, but I think there is a grading that works well and that is: we don't have so many dairies in Durham, I guess they don't have over twenty-five or thirty, maybe less, so if you publish in the daily papers or the monthly health bulletin, the bacterial count of those dairies and tell the folks what it means, the higher the bacterial count, the dirtier the milk, they will probably do the rest. I knew once a man who was selling milk and he was selling on a very prominent street in the town, had probably a dozen or twenty customers on that street, and one morning the milk wagon drove down the street and all but one told him he need not come back. He wanted to find out what the trouble was and they said, "You are selling the dirtiest milk in the city." They said, "Here is the health bulletin and you are down at the bottom." He made straight for the Health Department and said, "I want you to show me what to do." That grading, it seems to me, is a very satisfactory grading for North Carolina and produces the necessary results. It has been found diffi-

cult to get a higher price for the different grades. If the people get more and more educated on the subject it will be easy. It ought to bring a better price. I don't think quite a little difference would be too much.

The other thing I want to say is I am awful strong for this committee. I am not so particularly interested in the exact number or the places from which the personnel should be drawn, but I am awful strong for a committee, and I would suggest that a member of the State Board of Health or the Executive Staff should be on that committee. I am thinking of Dr. Shore just at this moment. It seems to me there ought to be somebody connected with the State Board of Health on that committee. I am strongly in favor of the committee and I suppose it would be in order, Mr. President, to make a motion for a committee. Then, I would move you, sir, that the Chair appoint a committee, taking into consideration the suggestions of the essayist, to take such action on this matter as may seem proper and report back to this Health Officers' Association.

Motion seconded by Dr. W. M. Jones; carried.

Dr. Epperson: I am thoroughly in accord with what Dr. McBrayer has said. He made mention of prices paid for the various grades of milk. My personal experience in this matter is that where milk grading systems are used regularly and efficiently that the lower grades cease to exist to a certain extent by pressure brought to bear on the producer of the low grade product by the consumer.

I will give you some statistics with reference to what I have been able to accomplish through a systematic grading system. Out of the last 67 samples of market milk collected for laboratory examinations, I found that 28 samples run a count of 5,000 or less, 13 samples had a count ranging from 5,000 to 10,000, 12 samples had a count ranging from 10,000 to 20,000, 10 samples had a count ranging from 20,000 to 50,000 and 2 samples ranging from 50,000 to 100,000.

I am further in accord with what Dr. McBrayer has said with reference to the part that certain regulation equipment plays in the production of clean, wholesome milk. I am of the opinion that good milk can be produced from sources that are lacking in beauty. But dirty and unwholesome milk may be produced with fine equipment and a thirty-cent dairyman.

Dr. G. M. Cooper, Raleigh: I think we have thoroughly discussed everything that could possibly be of interest to a health offier or any allied service today except one thing and that is the reports from

health officers. I think most of you will agree we have had incomparably the best meeting we have had since we have started the system of reading reports from counties. I took the liberty of discontinuing that practice without asking the Program Committee's advice or consent and instead of asking for reports for this meeting, I thought it best for us to have our program and then leave a place for informal discussion in which anybody that had anything of special interest to any health officer could offer it at this time, but I think the field has been thoroughly covered, and if you will allow me, I will make a motion that these reports for this year and in the future be mailed to the Secretary by the health officer of each county and city within thirty days after the annual meeting. These reports make valuable records, published in the Transactions show the progress in the different counties, and in the future will constitute a valuable series of histories. Therefore, I move they be sent to the Secretary and that he tabulate them and have them publishd in whatever form the Transactions are published.

Motion seconded by Dr. N. B. Adams; carried.

Dr. L. J. Smith, Wilson: May I ask Dr. Cooper if he intends that this report shall include from April to April or our annual reports from the first of January?

Dr. Cooper: From the first of April to the first of April, the year ending the first of April.

Dr. Smith: That is a rather awkward position to put a health officer in. You make out your report to submit to the Board of Health and Town Commissioners or County Commissioners, then you have to go back and figure so many months in that year and this year and you get tangled up and you don't know heads from tails. It has been, it seems to me, an abominable practice, and I was hoping we could submit an annual report, a condensation of the annual report we make to the Commissioners. I feel like that ought to be done some way or other.

Dr. R. L. Carlton, Winston-Salem: If I may be permitted to express myself, I feel I agree with you. It certainly works a hardship on the city health officers. They make the reports invariably for the calendar year. If we make a report for the comparison with other cities it must be with the calendar year. Therefore, we will be up against two reports. It seems to me if we could combine these two into one it would be very much better.

Dr. L. J. Smith: We would get the same information by adopting the annual report by the calendar year. I want to make a motion if it is not contrary to the motion already passed, that we adopt that as our regular report.

Motion that motion be reconsidered; motion carried.

Motion that annual report from January to January is the report to be submitted to the Secretary of the State Health Officers Association.

Dr. E. F. Long, Raleigh: Owing to the fact that our reports are necessarily voluminous I am wondering if it would not be wise to submit some questionnaire. If we want to reach into a narrative description of each county it will require a volume we would not be able to publish.

Dr. Smith: That has already been adopted and settled.

Motion seconded and carried.

REPORTS OF COMMITTEES

Report of Auditing Committee

Mr. President: We, your committee, appointed to audit the books of the Secretary-Treasurer, beg leave to submit the following:

Having no personal knowledge of any possible source from which funds might have been obtained, no assessments having been called for, and no collections taken, agree to accept the said report as read, that he has no funds.

We recommend, therefore, that his bondsmen be discharged from further financial responsibility.

Further, that the title of Secretary-Treasurer is a misnomer and that hereafter the name of the office be changed by dropping the word treasurer. This, however, with the distinct understanding that the present salary be continued as heretofore, without curtailment.

Committee:

Wm. M. Jones,
A. Cheatham,
Millard Knowlton.

(Seconded and adopted.)

Motion that report be adopted; seconded.

Dr. Carlton: As I understand it, this resolution carries a change of name from North Carolina Health Officers' Association, to North Carolina Public Health Association. In order to do that there will have to be a revision of the By-laws and Constitution, because that name is written into that document so it will be necessary to appoint a committee to revise the Constitution and By-laws.

Dr. Long: I move that the committee just reporting be continued. Motion seconded and carried.

The President named the following committee to confer with the State Board of Health regarding the establishment of county prenatal clinics and outlining the plan for such work: Dr. J. B. Sidbury, Miss Rose M. Ehrenfeld, Dr. A. S. Root, Dr. L. J. Smith, Miss Ross of Tarboro.

Also committee to formulate plan by which milk standards may be established in North Carolina: Dr. J. H. Epperson, Dr. L. B. McBrayer, Dr. W. A. McPhaul.

Election of Officers

Dr. W. M. Jones: I know of no reason why we should not follow the precedent that has for years been established, as I have heard nothing and know no reason why our present Vice-President should not succeed to the Presidency. I therefore place in nomination Dr. Smith for President of this Association.

Motion seconded; carried by acclamation.

Dr. L. J. Smith: Gentlemen, I am rather proud of this honor, and I am not unmindful of the responsibilities that go with it. It has been my fate ever since I was a child to play second fiddle up until this time. When I was a kid I played the second violin with my father in a little home orchestra. Later in life when made a Mason I was elected to the Senior Warden's station, never becoming Master. Later in life I joined a civic organization, the Kiwanis Club, and was elected Vice-President and never became President, last year you elected me Vice-President of this Association and tonight, President; tonight it is one of my great pleasures to say to you I sincerely appreciate this honor. Thank you.

Dr. J. R. McCracken, Waynesville: Up in the mountain section of North Carolina there are about six counties west of the Balsam mountains that have never been represented in any way in the State

Society or the Health Officers' Association. We have a man from the extreme west, who has travelled 500 miles to get here. Not only for the reason that that part of the State has never been represented, but because he is the man I know him to be, I wish to nominate N. B. Adams, of Murphy.

Nomination seconded.

Dr. C. W. Armstrong, Salisbury: I want to nominate a man for the Vice-Presidency of our Association who has been identified with Public Health work in North Carolina for a number of years, a man who has demonstrated his ability, and who, I think, is due some recognition from this association. I nominate Dr. A. C. Bulla, of Forsyth County.

Nomination seconded; Dr. Bulla was elected Vice-President.

Dr. A. C. Bulla, Winston-Salem: Gentlemen, I thank you very much for electing me Vice-President of this Association. I haven't a speech. Being elected over my friend, Dr. Adams, I feel it a great honor. Dr. Adams is a fine fellow, and I would have liked very much to have seen him made Vice-President.

Dr. Arch Cheatham, Durham: I rise to nominate for Secretary of this Association, Dr. F. M. Register, of Raleigh. He would make us a good man, and I wish to thank Dr. Cooper for the faithful service of so many years that he has given us.

Dr. W. M. Jones: I want to second the nomination, and I hope that Dr. Register will live to serve us as long as Dr. Cooper has done.

Motion that nominations be closed, made unanimous; seconded and carried.

Dr. Register: I rather object to this now that they have taken the treasuryship from me.

Dr. L. J. Smith: I want to say, as a member of this organization, that Dr. Cooper has served us faithfully and so far as I know, religiously, for a good many years, and it was not any intention, I think, on the part of the men to put Dr. Cooper out, but merely that we might distribute the burden on the different men in the organization.

Dr. Long: In view of the splendid, faithful service that Dr. Cooper has rendered to the Health Officers' Association, I move that we give a rising vote of thanks to him for that service.

Dr. Armstrong: I would like to make a motion that we extend the same rising vote of thanks for the retiring officers for the past year.

Motion seconded and carried.

Adjourned.

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